WHAT IS CLAIMED IS:

1. A method of transform-based encoding of digital video content, said digital video content comprising a stream of pictures, slices, or macroblocks in the form of blocks of pixels, each of said blocks of pixels having a corresponding two dimensional array of two dimensional array frequency coefficients, wherein, for each of said blocks, said method comprises:

dividing said two dimensional array of said two dimensional array frequency coefficients into a number of four by four blocks of two dimensional array frequency coefficients, said number of four by four blocks each comprising 4 columns and 4 rows of said two dimensional array frequency coefficients;

scanning said two dimensional array frequency coefficients in each of said number of four by four blocks with a pre-determined scanning order, said scanning order sequentially starting at 0 and ending at 15; and

producing a one dimensional array of one dimensional array frequency coefficients.

2. The method of claim 1, further comprising:

representing said columns of said number of four by four blocks with a variable n=0, 1, 2, or 3, wherein n=0 is at least one of a first or leftmost column, n=1 is a second column, n=2 is a third column, and n=3 is at least one of a fourth or rightmost column; and

representing said rows of said number of four by four blocks with a variable m=0, 1, 2, or 3, wherein m=0 is at least one of a first or top row, m=1 is a second row, m=2 is a third row, and m=3 is at least one of a fourth or bottom row.

3. The method of claim 2, wherein said one dimensional array comprises a number of groups of sixteen one dimensional array frequency coefficients, said number of groups corresponding to said number of said four by four blocks of said two dimensional array frequency coefficients, wherein said sixteen one dimensional array frequency coefficients in each of said groups are represented with a variable p=0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, in a numerical sequential order, wherein a first one dimensional array

frequency coefficient in said each of said groups is represented by p=0 and a sixteenth one dimensional array frequency coefficient in said each of said groups is represented by p=15.

4. The method of claim 3, wherein if said block of pixels is to be encoded in frame mode, said step of scanning said two dimensional array frequency coefficients in each of said number of four by four blocks comprises:

assigning a scanning order = 0 to a two dimensional array frequency coefficient located at n=0 and m=0;

assigning a scanning order = 1 to a two dimensional array frequency coefficient located at n=1 and m=0;

assigning a scanning order = 2 to a two dimensional array frequency coefficient located at n=0 and m=1;

assigning a scanning order = 3 to a two dimensional array frequency coefficient located at n=0 and m=2;

assigning a scanning order = 4 to a two dimensional array frequency coefficient located at n=1 and m=1;

assigning a scanning order = 5 to a two dimensional array frequency coefficient located at n=2 and m=0;

assigning a scanning order = 6 to a two dimensional array frequency coefficient located at n=3 and m=0;

assigning a scanning order = 7 to a two dimensional array frequency coefficient located at n=2 and m=1;

assigning a scanning order = 8 to a two dimensional array frequency coefficient located at n=1 and m=2;

assigning a scanning order = 9 to a two dimensional array frequency coefficient located at n=0 and m=3;

assigning a scanning order = 10 to a two dimensional array frequency coefficient located at n=1 and m=3;

assigning a scanning order = 11 to a two dimensional array frequency coefficient located at n=2 and m=2;

assigning a scanning order = 12 to a two dimensional array frequency coefficient located at n=3 and m=1;

assigning a scanning order = 13 to a two dimensional array frequency coefficient located at n=3 and m=2;

assigning a scanning order = 14 to a two dimensional array frequency coefficient located at n=2 and m=3; and

assigning a scanning order = 15 to a two dimensional array frequency coefficient located at n=3 and m=3.

5. The method of claim 4, wherein said step of scanning said two dimensional array frequency coefficients in each of said number of four by four blocks further comprises:

assigning a one dimensional array frequency coefficient located at p=0 in a corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=0 and m=0.

assigning a one dimensional array frequency coefficient located at p=1 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=1 and m=0;

assigning a one dimensional array frequency coefficient located at p=2 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=0 and m=1;

assigning a one dimensional array frequency coefficient located at p=3 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=0 and m=2;

assigning a one dimensional array frequency coefficient located at p=4 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=1 and m=1;

assigning a one dimensional array frequency coefficient located at p=5 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=2 and m=0;

assigning a one dimensional array frequency coefficient located at p=6 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=3 and m=0;

assigning a one dimensional array frequency coefficient located at p=7 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=2 and m=1;

assigning a one dimensional array frequency coefficient located at p=8 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=1 and m=2;

assigning a one dimensional array frequency coefficient located at p=9 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=0 and m=3;

assigning a one dimensional array frequency coefficient located at p=10 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=1 and m=3;

assigning a one dimensional array frequency coefficient located at p=11 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=2 and m=2;

assigning a one dimensional array frequency coefficient located at p=12 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=3 and m=1;

assigning a one dimensional array frequency coefficient located at p=13 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=3 and m=2;

assigning a one dimensional array frequency coefficient located at p=14 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=2 and m=3; and

assigning a one dimensional array frequency coefficient located at p=15 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=3 and m=3.

6. The method of claim 5, further comprising:

scanning each of said number of groups of sixteen one dimensional array frequency coefficients in said numerical sequential order, said scanning starting at p=0 and ending at p=15; and

producing said two dimensional array of said two dimensional array frequency coefficients.

7. The method of claim 6, wherein, for each of said number of groups of sixteen one dimensional array frequency coefficients, said step of scanning said each of said number of groups of sixteen one dimensional array frequency coefficients further comprises:

assigning a two dimensional array frequency coefficient located at n=0 and m=0 in a corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=0;

assigning a two dimensional array frequency coefficient located at n=1 and m=0 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=1;

assigning a two dimensional array frequency coefficient located at n=0 and m=1 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=2;

assigning a two dimensional array frequency coefficient located at n=0 and m=2 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=3;

assigning a two dimensional array frequency coefficient located at n=1 and m=1 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=4;

assigning a two dimensional array frequency coefficient located at n=2 and m=0 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=5;

assigning a two dimensional array frequency coefficient located at n=3 and m=0 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=6;

assigning a two dimensional array frequency coefficient located at n=2 and m=1 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=7;

assigning a two dimensional array frequency coefficient located at n=1 and m=2 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=8;

assigning a two dimensional array frequency coefficient located at n=0 and m=3 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=9;

assigning a two dimensional array frequency coefficient located at n=1 and m=3 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=10;

assigning a two dimensional array frequency coefficient located at n=2 and m=2 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=11;

assigning a two dimensional array frequency coefficient located at n=3 and m=1 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=12;

assigning a two dimensional array frequency coefficient located at n=3 and m=2 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=13;

assigning a two dimensional array frequency coefficient located at n=2 and m=3 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=14; and

assigning a two dimensional array frequency coefficient located at n=3 and m=3 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=15.

8. The method of claim 5, wherein if said two dimensional array of said two dimensional array frequency coefficients comprises four columns and four rows of said two dimensional array frequency coefficients:

said step of dividing said two dimensional array into a number of four by four blocks of two dimensional array frequency coefficients comprises dividing said two dimensional array into a single four by four block comprising all of said two dimensional array frequency coefficients in said two dimensional array.

9. The method of claim 8, wherein:

said one dimensional array of said one dimensional array frequency coefficients comprises 16 one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array, wherein a first one dimensional array frequency coefficient of said one dimensional array is at position 0 and a sixteenth one dimensional array frequency coefficient of said one dimensional array is at position 15; and

said number of groups of sixteen one dimensional array frequency coefficients comprises a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array, said first group being said corresponding group of sixteen one dimensional array frequency coefficients for said single four by four block.

10. The method of claim 9, wherein:

said two dimensional array frequency coefficients of said single four by four block are scanned using said step of scanning said two dimensional array frequency coefficients.

11. The method of claim 7, wherein if said one dimensional array of one dimensional array frequency coefficients comprises 16 one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array, said two dimensional array of said two dimensional array frequency coefficients comprises four columns and four rows of said two dimensional array frequency coefficients and said number of groups of sixteen one dimensional array frequency coefficients comprises:

a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array.

12. The method of claim 11, wherein:

said first group's said corresponding four by four block of said two dimensional array frequency coefficients is a single four by four block comprising said all of said two dimensional array frequency coefficients in said two dimensional array.

13. The method of claim 5, wherein if said two dimensional array of said two dimensional array frequency coefficients comprises four columns and eight rows of said two dimensional array frequency coefficients:

said step of dividing said two dimensional array into a number of four by four blocks of two dimensional array frequency coefficients comprises dividing said two dimensional array into a top four by four block comprising the top four rows of said two dimensional array frequency coefficients in said two dimensional array and a bottom four by four block comprising the bottom four rows of said two dimensional array frequency coefficients in said two dimensional array.

14. The method of claim 13, wherein:

said one dimensional array of said one dimensional array frequency coefficients comprises 32 one dimensional array frequency coefficients at positions 0 through 31 in said one dimensional array, wherein a first one dimensional array frequency coefficient of said one dimensional array is at position 0 and a thirty-second one dimensional array frequency coefficient of said one dimensional array is at position 31; and

said number of groups of sixteen one dimensional array frequency coefficients comprises a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array and a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array, said first group being said corresponding group of sixteen one dimensional array frequency coefficients for said top four by four block and said second group being said corresponding group of sixteen one dimensional array frequency coefficients for said bottom four by four block.

15. The method of claim 14, wherein:

said two dimensional array frequency coefficients of said top four by four block are scanned first using said step of scanning said two dimensional array frequency coefficients; and

said two dimensional array frequency coefficients of said bottom four by four block are scanned second using said step of scanning said two dimensional array frequency coefficients.

16. The method of claim 7, wherein if said one dimensional array of said one dimensional array frequency coefficients comprises 32 one dimensional array frequency coefficients at positions 0 through 31 in said one dimensional array, said two dimensional array of said two dimensional array frequency coefficients comprises four columns and eight rows of said two dimensional array frequency coefficients and said number of groups of sixteen one dimensional array frequency coefficients comprises:

a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array; and

a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array.

17. The method of claim 16, wherein:

said first group's said corresponding four by four block of said two dimensional array frequency coefficients is a top four by four block comprising the top four rows of said two dimensional array frequency coefficients in said two dimensional array; and

said second group's said corresponding four by four block of said two dimensional array frequency coefficients is a bottom four by four block comprising the bottom four rows of said two dimensional array frequency coefficients in said two dimensional array.

18. The method of claim 5, wherein if said two dimensional array of said two dimensional array frequency coefficients comprises eight columns and four rows of said two dimensional array frequency coefficients:

said step of dividing said two dimensional array into a number of four by four blocks of two dimensional array frequency coefficients comprises dividing said two dimensional array into a left four by four block comprising the left-most four columns of said two dimensional array frequency coefficients in said two dimensional array and a right four by four block comprising the right-most four columns of said two dimensional array frequency coefficients in said two dimensional array.

19. The method of claim 18, wherein:

said one dimensional array of said one dimensional array frequency coefficients comprises 32 one dimensional array frequency coefficients at positions 0 through 31 in said one dimensional array, wherein a first one dimensional array frequency coefficient of said one dimensional array is at position 0 and a thirty-second one dimensional array frequency coefficient of said one dimensional array is at position 31; and

said number of groups of sixteen one dimensional array frequency coefficients comprises a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array and a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array, said first group being said corresponding group of sixteen one dimensional array frequency coefficients for said left four by four block and said second group being said corresponding group of sixteen one dimensional array frequency coefficients for said right four by four block.

20. The method of claim 19, wherein:

said two dimensional array frequency coefficients of said left four by four block are scanned first using said step of scanning said two dimensional array frequency coefficients; and

said two dimensional array frequency coefficients of said right four by four block are scanned second using said step of scanning said two dimensional array frequency coefficients.

21. The method of claim 7, wherein if said one dimensional array of said one dimensional array frequency coefficients comprises 32 one dimensional array frequency

coefficients at positions 0 through 31 in said one dimensional array, said two dimensional array of said two dimensional array frequency coefficients comprises eight columns and four rows of said two dimensional array frequency coefficients and said number of groups of sixteen one dimensional array frequency coefficients comprises:

a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array; and

a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array.

22. The method of claim 21, wherein:

said first group's said corresponding four by four block of said two dimensional array frequency coefficients is a left four by four block comprising the left-most four columns of said two dimensional array frequency coefficients in said two dimensional array; and

said second group's said corresponding four by four block of said two dimensional array frequency coefficients is a right four by four block comprising the right-most four columns of said two dimensional array frequency coefficients in said two dimensional array.

23. The method of claim 5, wherein if said two dimensional array of said two dimensional array frequency coefficients comprises eight columns and eight rows of said two dimensional array frequency coefficients, said step of dividing said two dimensional array into a number of four by four blocks of two dimensional array frequency coefficients comprises dividing said two dimensional array into:

a top-left four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the left-most four columns of said two dimensional array;

a top-right four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the right-most four columns of said two dimensional array;

a bottom-left four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the left-most four columns of said two dimensional array; and

a bottom-right four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the right-most four columns of said two dimensional array.

24. The method of claim 23, wherein:

said one dimensional array of said one dimensional array frequency coefficients comprises 64 frequency coefficients at positions 0 through 63 in said one dimensional array, wherein a first one dimensional array frequency coefficient of said one dimensional array is at position 0 and a sixty-fourth one dimensional array frequency coefficient of said one dimensional array is at position 63; and

said number of groups of sixteen one dimensional array frequency coefficients comprises a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array, a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array, a third group comprising one dimensional array frequency coefficients at positions 32 through 47 in said one dimensional array, and a fourth group comprising one dimensional array frequency coefficients at positions 48 through 63 in said one dimensional array, said first group being said corresponding group of sixteen one dimensional array frequency coefficients for said top-left four by four block, said second group being said corresponding group of sixteen one dimensional array frequency coefficients for said top-right four by four block, said third group being said corresponding group of sixteen one dimensional array frequency coefficients for said bottom-left four by four block, said fourth group being said corresponding group of sixteen one dimensional array frequency coefficients for said bottom-right four by four block.

25. The method of claim 24, wherein:

said two dimensional array frequency coefficients of said top-left four by four block are scanned first using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said top-right four by four block are scanned second using said step of scanning said two dimensional array frequency coefficients;

s said two dimensional array frequency coefficients of aid bottom-left four by four block are scanned third using said step of scanning said two dimensional array frequency coefficients; and

said two dimensional array frequency coefficients of said bottom-right four by four block are scanned fourth using said step of scanning said two dimensional array frequency coefficients.

26. The method of claim 7, wherein if said one dimensional array of said one dimensional array frequency coefficients comprises 64 one dimensional array frequency coefficients at positions 0 through 63 in said one dimensional array, said two dimensional array of said two dimensional array frequency coefficients comprises eight columns and eight rows of said two dimensional array frequency coefficients and said number of groups of sixteen one dimensional array frequency coefficients comprises:

a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array;

a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array;

a third group comprising one dimensional array frequency coefficients at positions 32 through 47 in said one dimensional array; and

a fourth group comprising one dimensional array frequency coefficients at positions 48 through 63 in said one dimensional array.

27. The method of claim 26, wherein:

said first group's said corresponding four by four block of said two dimensional array frequency coefficients is a top-left four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the left-most four columns of said two dimensional array;

said second group's said corresponding four by four block of said two dimensional array frequency coefficients is a top-right four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the right-most four columns of said two dimensional array;

said third group's said corresponding four by four block of said two dimensional array frequency coefficients is a bottom-left four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the left-most four columns of said two dimensional array; and

said fourth group's said corresponding four by four block of said two dimensional array frequency coefficients is said bottom-right four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the right-most four columns of said two dimensional array.

28. The method of claim 5, wherein if said two dimensional array of said two dimensional array frequency coefficients comprises eight columns and sixteen rows of said two dimensional array frequency coefficients, said step of dividing said two dimensional array into a number of four by four blocks of two dimensional array frequency coefficients comprises dividing said two dimensional array into:

a first four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the left-most four columns of said two dimensional array;

a second four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the right-most four columns of said two dimensional array;

a third four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows from the top of said two dimensional array and in the left-most four columns of said two dimensional array;

a fourth four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows from the top of said two dimensional array and in the right-most four columns of said two dimensional array;

a fifth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows from the top of said two dimensional array and in the left-most four columns of said two dimensional array;

a sixth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows from the top of said two dimensional array and in the right-most four columns of said two dimensional array;

a seventh four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the left-most four columns of said two dimensional array; and

an eighth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the right-most four columns of said two dimensional array.

29. The method of claim 28, wherein:

said one dimensional array of said one dimensional array frequency coefficients comprises 128 one dimensional array frequency coefficients at positions 0 through 127 in said one dimensional array, wherein a first one dimensional array frequency coefficient of said one dimensional array is at position 0 and a one hundred and twenty-eighth one dimensional array frequency coefficient of said one dimensional array is at position 127; and

said number of groups of sixteen one dimensional array frequency coefficients comprises a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array, a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array, a third group comprising one dimensional array frequency coefficients at positions 32 through 47 in said one dimensional array, a fourth group comprising one dimensional array frequency coefficients at positions 48 through 63 in said one dimensional array, a fifth group comprising one dimensional array frequency coefficients at positions 64 through 79 in said one dimensional array, a sixth group comprising one dimensional array frequency coefficients at positions 80 through 95 in said one dimensional array, a seventh group comprising one dimensional array frequency coefficients at positions 96 through 111 in said one dimensional array, and an eighth group comprising one dimensional array frequency coefficients at positions 112 through 127 in said one dimensional array, said first group being said corresponding group of sixteen one dimensional array frequency coefficients for said first four by four block, said second group being said corresponding group of sixteen one

dimensional array frequency coefficients for said second four by four block, said third group being said corresponding group of sixteen one dimensional array frequency coefficients for said third four by four block, said fourth group being said corresponding group of sixteen one dimensional array frequency coefficients for said fourth four by four block, said fifth group being said corresponding group of sixteen one dimensional array frequency coefficients for said fifth four by four block, said sixth group being said corresponding group of sixteen one dimensional array frequency coefficients for said sixth four by four block, said seventh group being said corresponding group of sixteen one dimensional array frequency coefficients for said seventh four by four block, said eighth group being said corresponding group of sixteen one dimensional array frequency coefficients for said eighth four by four block.

30. The method of claim 29, wherein:

said two dimensional array frequency coefficients of said first four by four block are scanned first using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said second four by four block are scanned second using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said third four by four block are scanned third using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said fourth four by four block are scanned fourth using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said fifth four by four block are scanned fifth using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said sixth four by four block are scanned sixth using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said seventh four by four block are scanned seventh using said step of scanning said two dimensional array frequency coefficients; and

said two dimensional array frequency coefficients of said eighth four by four block are scanned eighth using said step of scanning said two dimensional array frequency coefficients.

31. The method of claim 7, wherein if said one dimensional array of said one dimensional array frequency coefficients comprises 128 one dimensional array frequency coefficients at positions 0 through 127 in said one dimensional array, said two dimensional array of said two dimensional array frequency coefficients comprises eight columns and sixteen rows of said two dimensional array frequency coefficients and said number of groups of sixteen one dimensional array frequency coefficients comprises:

a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array;

a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array;

a third group comprising one dimensional array frequency coefficients at positions 32 through 47 in said one dimensional array;

a fourth group comprising one dimensional array frequency coefficients at positions 48 through 63 in said one dimensional array;

a fifth group comprising one dimensional array frequency coefficients at positions 64 through 79 in said one dimensional array;

a sixth group comprising one dimensional array frequency coefficients at positions 80 through 95 in said one dimensional array;

a seventh group comprising one dimensional array frequency coefficients at positions 96 through 111 in said one dimensional array; and

an eighth group comprising one dimensional array frequency coefficients at positions 112 through 127 in said one dimensional array.

32. The method of claim 31, wherein:

said first group's said corresponding four by four block of said two dimensional array frequency coefficients is a first four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the left-most four columns of said two dimensional array;

said second group's said corresponding four by four block of said two dimensional array frequency coefficients is a second four by four block comprising said two dimensional

array frequency coefficients in both the top four rows and in the right-most four columns of said two dimensional array;

said third group's said corresponding four by four block of said two dimensional array frequency coefficients is a third four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh from the top of said two dimensional array and in the left-most four columns of said two dimensional array;

said fourth group's said corresponding four by four block of said two dimensional array frequency coefficients is a fourth four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows from the top of said two dimensional array and in the right-most four columns of said two dimensional array;

said fifth group's said corresponding four by four block of said two dimensional array frequency coefficients is a fifth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows from the top of said two dimensional array and in the left-most four columns of said two dimensional array;

said sixth group's said corresponding four by four block of said two dimensional array frequency coefficients is a sixth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows from the top of said two dimensional array and in the right-most four columns of said two dimensional array;

said seventh group's said corresponding four by four block of said two dimensional array frequency coefficients is a seventh four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the left-most four columns of said two dimensional array; and

said eighth group's said corresponding four by four block of said two dimensional array frequency coefficients is an eighth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the right-most four columns of said two dimensional array.

33. The method of claim 5, wherein if said two dimensional array of said two dimensional array frequency coefficients comprises sixteen columns and eight rows of said two dimensional array frequency coefficients, said step of dividing said two dimensional

array into a number of four by four blocks of two dimensional array frequency coefficients comprises dividing said two dimensional array into:

a first four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the left-most four columns of said two dimensional array;

a second four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the fourth through seventh columns of said two dimensional array;

a third four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the first four columns of said two dimensional array;

a fourth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the fourth through seventh columns of said two dimensional array;

a fifth four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the eighth through eleventh columns of said two dimensional array;

a sixth four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the right-most four columns of said two dimensional array;

a seventh four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the eighth through eleventh columns of said two dimensional array; and

an eighth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the right-most four columns of said two dimensional array.

34. The method of claim 33, wherein:

said one dimensional array of said one dimensional array frequency coefficients comprises 128 one dimensional array frequency coefficients at positions 0 through 127 in said one dimensional array, wherein a first one dimensional array frequency coefficient of said one

dimensional array is at position 0 and a one hundred and twenty-eighth one dimensional array frequency coefficient of said one dimensional array is at position 127; and

said number of groups of sixteen one dimensional array frequency coefficients comprises a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array, a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array, a third group comprising one dimensional array frequency coefficients at positions 32 through 47 in said one dimensional array, a fourth group comprising one dimensional array frequency coefficients at positions 48 through 63 in said one dimensional array, a fifth group comprising one dimensional array frequency coefficients at positions 64 through 79 in said one dimensional array, a sixth group comprising one dimensional array frequency coefficients at positions 80 through 95 in said one dimensional array, a seventh group comprising one dimensional array frequency coefficients at positions 96 through 111 in said one dimensional array, and an eighth group comprising one dimensional array frequency coefficients at positions 112 through 127 in said one dimensional array, said first group being said corresponding group of sixteen one dimensional array frequency coefficients for said first four by four block, said second group being said corresponding group of sixteen one dimensional array frequency coefficients for said second four by four block, said third group being said corresponding group of sixteen one dimensional array frequency coefficients for said third four by four block, said fourth group being said corresponding group of sixteen one dimensional array frequency coefficients for said fourth four by four block, said fifth group being said corresponding group of sixteen one dimensional array frequency coefficients for said fifth four by four block, said sixth group being said corresponding group of sixteen one dimensional array frequency coefficients for said sixth four by four block, said seventh group being said corresponding group of sixteen one dimensional array frequency coefficients for said seventh four by four block, said eighth group being said corresponding group of sixteen one dimensional array frequency coefficients for said eighth four by four block.

35. The method of claim 34, wherein:

said two dimensional array frequency coefficients of said first four by four block are scanned first using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said second four by four block are scanned second using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said third four by four block are scanned third using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said fourth four by four block are scanned fourth using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said fifth four by four block are scanned fifth using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said sixth four by four block are scanned sixth using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said seventh four by four block are scanned seventh using said step of scanning said two dimensional array frequency coefficients; and

said two dimensional array frequency coefficients of said eighth four by four block are scanned eighth using said step of scanning said two dimensional array frequency coefficients.

36. The method of claim 7, wherein if said one dimensional array of said one dimensional array frequency coefficients comprises 128 one dimensional array frequency coefficients at positions 0 through 127 in said one dimensional array, said two dimensional array of said two dimensional array frequency coefficients comprises eight columns and sixteen rows of said two dimensional array frequency coefficients and said number of groups of sixteen one dimensional array frequency coefficients comprises:

a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array;

a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array;

a third group comprising one dimensional array frequency coefficients at positions 32 through 47 in said one dimensional array;

a fourth group comprising one dimensional array frequency coefficients at positions 48 through 63 in said one dimensional array;

a fifth group comprising one dimensional array frequency coefficients at positions 64 through 79 in said one dimensional array;

a sixth group comprising one dimensional array frequency coefficients at positions 80 through 95 in said one dimensional array;

a seventh group comprising one dimensional array frequency coefficients at positions 96 through 111 in said one dimensional array; and

an eighth group comprising one dimensional array frequency coefficients at positions 112 through 127 in said one dimensional array.

37. The method of claim 36, wherein:

said first group's said corresponding four by four block of said two dimensional array frequency coefficients is a first four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the left-most four columns of said two dimensional array;

said second group's said corresponding four by four block of said two dimensional array frequency coefficients is a second four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the fourth through seventh columns of said two dimensional array;

said third group's said corresponding four by four block of said two dimensional array frequency coefficients is a third four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the first four columns of said two dimensional array;

said fourth group's said corresponding four by four block of said two dimensional array frequency coefficients is a fourth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the fourth through seventh columns of said two dimensional array;

said fifth group's said corresponding four by four block of said two dimensional array frequency coefficients is a fifth four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the eighth through eleventh columns of said two dimensional array;

said sixth group's said corresponding four by four block of said two dimensional array frequency coefficients is a sixth four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the right-most four columns of said two dimensional array;

said seventh group's said corresponding four by four block of said two dimensional array frequency coefficients is a seventh four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the eighth through eleventh columns of said two dimensional array; and

said eighth group's said corresponding four by four block of said two dimensional array frequency coefficients is an eighth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the right-most four columns of said two dimensional array.

38. The method of claim 5, wherein if said two dimensional array of said two dimensional array frequency coefficients comprises sixteen columns and sixteen rows of said two dimensional array frequency coefficients, said step of dividing said two dimensional array into a number of four by four blocks of two dimensional array frequency coefficients comprises dividing said two dimensional array into:

a first four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the left-most four columns of said two dimensional array;

a second four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the fourth through seventh columns of said two dimensional array;

a third four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows four rows and in the first four columns of said two dimensional array;

a fourth four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows and in the fourth through seventh columns of said two dimensional array;

a fifth four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the eighth through eleventh columns of said two dimensional array;

a sixth four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the right-most four columns of said two dimensional array;

a seventh four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows and in the eighth through eleventh columns of said two dimensional array;

an eighth four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows and in the right-most four columns of said two dimensional array;

a ninth four by four block comprising said two dimensional array frequency coefficients in the eighth through eleventh rows and in the left-most four columns of said two dimensional array;

a tenth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows and in the fourth through seventh columns of said two dimensional array;

an eleventh four by four block comprising said two dimensional array frequency coefficients in the bottom four rows and in the first four columns of said two dimensional array;

a twelfth fourth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the fourth through seventh columns of said two dimensional array;

a thirteenth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows and in the eighth through eleventh columns of said two dimensional array;

a fourteenth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows and in the right-most four columns of said two dimensional array;

a fifteenth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the eighth through eleventh columns of said two dimensional array; and

a sixteenth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the right-most four columns of said two dimensional array.

39. The method of claim 38, wherein:

said one dimensional array of said one dimensional array frequency coefficients comprises 256 one dimensional array frequency coefficients at positions 0 through 255 in said one dimensional array, wherein a first one dimensional array frequency coefficient of said one dimensional array is at position 0 and a two hundred and fifth-sixth one dimensional array frequency coefficient of said one dimensional array is at position 255; and

said number of groups of sixteen one dimensional array frequency coefficients comprises a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array, a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array, a third group comprising one dimensional array frequency coefficients at positions 32 through 47 in said one dimensional array, a fourth group comprising one dimensional array frequency coefficients at positions 48 through 63 in said one dimensional array, a fifth group comprising one dimensional array frequency coefficients at positions 64 through 79 in said one dimensional array, a sixth group comprising one dimensional array frequency coefficients at positions 80 through 95 in said one dimensional array, a seventh group comprising one dimensional array frequency coefficients at positions 96 through 111 in said one dimensional array, and an eighth group comprising one dimensional array frequency coefficients at positions 112 through 127 in said one dimensional array, a ninth group comprising one dimensional array frequency coefficients at positions 128 through 143 in said one dimensional array, a tenth group comprising one dimensional array frequency coefficients at positions 144 through 159 in said one dimensional array, an eleventh group comprising one dimensional array frequency coefficients at positions 160 through 175 in said one dimensional array, a twelfth group comprising one dimensional array frequency coefficients

at positions 176 through 191 in said one dimensional array, a thirteenth group comprising one dimensional array frequency coefficients at positions 192 through 207 in said one dimensional array, a fourteenth group comprising one dimensional array frequency coefficients at positions 208 through 223 in said one dimensional array, a fifteenth group comprising one dimensional array frequency coefficients at positions 224 through 239 in said one dimensional array, and a sixteenth group comprising one dimensional array frequency coefficients at positions 240 through 255 in said one dimensional array, said first group being said corresponding group of sixteen one dimensional array frequency coefficients for said first four by four block, said second group being said corresponding group of sixteen one dimensional array frequency coefficients for said second four by four block, said third group being said corresponding group of sixteen one dimensional array frequency coefficients for said third four by four block, said fourth group being said corresponding group of sixteen one dimensional array frequency coefficients for said fourth four by four block, said fifth group being said corresponding group of sixteen one dimensional array frequency coefficients for said fifth four by four block, said sixth group being said corresponding group of sixteen one dimensional array frequency coefficients for said sixth four by four block, said seventh group being said corresponding group of sixteen one dimensional array frequency coefficients for said seventh four by four block, said eighth group being said corresponding group of sixteen one dimensional array frequency coefficients for said eighth four by four block, said ninth group being said corresponding group of sixteen one dimensional array frequency coefficients for said ninth four by four block, said tenth group being said corresponding group of sixteen one dimensional array frequency coefficients for said tenth four by four block, said eleventh group being said corresponding group of sixteen one dimensional array frequency coefficients for said eleventh four by four block, said twelfth group being said corresponding group of sixteen one dimensional array frequency coefficients for said twelfth four by four block, said thirteenth group being said corresponding group of sixteen one dimensional array frequency coefficients for said thirteenth four by four block, said fourteenth group being said corresponding group of sixteen one dimensional array frequency coefficients for said fourteenth four by four block, said fifteenth group being said corresponding group of sixteen one dimensional array frequency coefficients for said fifteenth four by four block, said

sixteenth group being said corresponding group of sixteen one dimensional array frequency coefficients for said sixteenth four by four block.

40. The method of claim 39, wherein:

said two dimensional array frequency coefficients of said first four by four block are scanned first using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said second four by four block are scanned second using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said third four by four block are scanned third using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said fourth four by four block are scanned fourth using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said fifth four by four block are scanned fifth using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said sixth four by four block are scanned sixth using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said seventh four by four block are scanned seventh using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said eighth four by four block are scanned eighth using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said ninth four by four block are scanned ninth using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said tenth four by four block are scanned tenth using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said eleventh four by four block are scanned eleventh using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said twelfth four by four block are scanned twelfth using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said thirteenth four by four block are scanned thirteenth using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said fourteenth four by four block are scanned fourteenth using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said fifteenth four by four block are scanned fifteenth using said step of scanning said two dimensional array frequency coefficients; and

said two dimensional array frequency coefficients of said sixteenth four by four block are scanned sixteenth using said step of scanning said two dimensional array frequency coefficients.

41. The method of claim 7, wherein if said one dimensional array of said one dimensional array frequency coefficients comprises 256 one dimensional array frequency coefficients at positions 0 through 255 in said one dimensional array, said two dimensional array of said two dimensional array frequency coefficients comprises sixteen columns and sixteen rows of said two dimensional array frequency coefficients and said number of groups of sixteen one dimensional array frequency coefficients comprises:

a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array;

a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array;

a third group comprising one dimensional array frequency coefficients at positions 32 through 47 in said one dimensional array;

a fourth group comprising one dimensional array frequency coefficients at positions 48 through 63 in said one dimensional array;

a fifth group comprising one dimensional array frequency coefficients at positions 64 through 79 in said one dimensional array;

a sixth group comprising one dimensional array frequency coefficients at positions 80 through 95 in said one dimensional array;

a seventh group comprising one dimensional array frequency coefficients at positions 96 through 111 in said one dimensional array;

an eighth group comprising one dimensional array frequency coefficients at positions 112 through 127 in said one dimensional array;

a ninth group comprising one dimensional array frequency coefficients at positions 128 through 143 in said one dimensional array;

a tenth group comprising one dimensional array frequency coefficients at positions 144 through 159 in said one dimensional array;

an eleventh group comprising one dimensional array frequency coefficients at positions 160 through 175 in said one dimensional array;

a twelfth group comprising one dimensional array frequency coefficients at positions 176 through 191 in said one dimensional array;

a thirteenth group comprising one dimensional array frequency coefficients at positions 192 through 207 in said one dimensional array;

a fourteenth group comprising one dimensional array frequency coefficients at positions 208 through 223 in said one dimensional array;

a fifteenth group comprising one dimensional array frequency coefficients at positions 224 through 239 in said one dimensional array; and

a sixteenth group comprising one dimensional array frequency coefficients at positions 240 through 255 in said one dimensional array.

42. The method of claim 41, wherein:

said first group's said corresponding four by four block of said two dimensional array frequency coefficients is a first four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the left-most four columns of said two dimensional array;

said second group's said corresponding four by four block of said two dimensional array frequency coefficients is a second four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the fourth through seventh columns of said two dimensional array;

said third group's said corresponding four by four block of said two dimensional array frequency coefficients is a third four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows four rows and in the first four columns of said two dimensional array;

said fourth group's said corresponding four by four block of said two dimensional array frequency coefficients is a fourth four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows and in the fourth through seventh columns of said two dimensional array;

said fifth group's said corresponding four by four block of said two dimensional array frequency coefficients is a fifth four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the eighth through eleventh columns of said two dimensional array;

said sixth group's said corresponding four by four block of said two dimensional array frequency coefficients is a sixth four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the right-most four columns of said two dimensional array;

said seventh group's said corresponding four by four block of said two dimensional array frequency coefficients is a seventh four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows and in the eighth through eleventh columns of said two dimensional array;

said eighth group's said corresponding four by four block of said two dimensional array frequency coefficients is an eighth four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows and in the right-most four columns of said two dimensional array;

said ninth group's said corresponding four by four block of said two dimensional array frequency coefficients is a ninth four by four block comprising said two dimensional array

frequency coefficients in the eighth through eleventh rows and in the left-most four columns of said two dimensional array;

said tenth group's said corresponding four by four block of said two dimensional array frequency coefficients is a tenth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows and in the fourth through seventh columns of said two dimensional array;

said eleventh group's said corresponding four by four block of said two dimensional array frequency coefficients is an eleventh four by four block comprising said two dimensional array frequency coefficients in the bottom four rows and in the first four columns of said two dimensional array;

said twelfth group's said corresponding four by four block of said two dimensional array frequency coefficients is a twelfth fourth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the fourth through seventh columns of said two dimensional array;

said thirteenth group's said corresponding four by four block of said two dimensional array frequency coefficients is a thirteenth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows and in the eighth through eleventh columns of said two dimensional array;

said fourteenth group's said corresponding four by four block of said two dimensional array frequency coefficients is a fourteenth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows and in the right-most four columns of said two dimensional array;

said fifteenth group's said corresponding four by four block of said two dimensional array frequency coefficients is a fifteenth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the eighth through eleventh columns of said two dimensional array;

said sixteenth group's said corresponding four by four block of said two dimensional array frequency coefficients is a sixteenth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the right-most four columns of said two dimensional array.

43. The method of claim 3, wherein if said block of pixels is to be encoded in field mode, said step of scanning said two dimensional array frequency coefficients in each of said number of four by four blocks comprises:

assigning a scanning order = 0 to a two dimensional array frequency coefficient located at n=0 and m=0;

assigning a scanning order = 1 to a two dimensional array frequency coefficient located at n=0 and m=1;

assigning a scanning order = 2 to a two dimensional array frequency coefficient located at n=1 and m=0;

assigning a scanning order = 3 to a two dimensional array frequency coefficient located at n=0 and m=2;

assigning a scanning order = 4 to a two dimensional array frequency coefficient located at n=0 and m=3;

assigning a scanning order = 5 to a two dimensional array frequency coefficient located at n=1 and m=1;

assigning a scanning order = 6 to a two dimensional array frequency coefficient located at n=1 and m=2;

assigning a scanning order = 7 to a two dimensional array frequency coefficient located at n=1 and m=3;

assigning a scanning order = 8 to a two dimensional array frequency coefficient located at n=2 and m=0;

assigning a scanning order = 9 to a two dimensional array frequency coefficient located at n=2 and m=1;

assigning a scanning order = 10 to a two dimensional array frequency coefficient located at n=2 and m=2;

assigning a scanning order = 11 to a two dimensional array frequency coefficient located at n=2 and m=3;

assigning a scanning order = 12 to a two dimensional array frequency coefficient located at n=3 and m=0;

assigning a scanning order = 13 to a two dimensional array frequency coefficient located at n=3 and m=1;

assigning a scanning order = 14 to a two dimensional array frequency coefficient located at n=3 and m=2; and

assigning a scanning order = 15 to a two dimensional array frequency coefficient located at n=3 and m=3.

44. The method of claim 43, wherein said step of scanning said two dimensional array frequency coefficients in each of said number of four by four blocks further comprises:

assigning a one dimensional array frequency coefficient located at p=0 in a corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=0 and m=0.

assigning a one dimensional array frequency coefficient located at p=1 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=0 and m=1;

assigning a one dimensional array frequency coefficient located at p=2 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=1 and m=0;

assigning a one dimensional array frequency coefficient located at p=3 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=0 and m=2;

assigning a one dimensional array frequency coefficient located at p=4 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=0 and m=3;

assigning a one dimensional array frequency coefficient located at p=5 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=1 and m=1;

assigning a one dimensional array frequency coefficient located at p=6 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=1 and m=2;

assigning a one dimensional array frequency coefficient located at p=7 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=1 and m=3;

assigning a one dimensional array frequency coefficient located at p=8 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=2 and m=0;

assigning a one dimensional array frequency coefficient located at p=9 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=2 and m=1;

assigning a one dimensional array frequency coefficient located at p=10 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=2 and m=2;

assigning a one dimensional array frequency coefficient located at p=11 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=2 and m=3;

assigning a one dimensional array frequency coefficient located at p=12 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=3 and m=0;

assigning a one dimensional array frequency coefficient located at p=13 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=3 and m=1;

assigning a one dimensional array frequency coefficient located at p=14 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=3 and m=2; and

assigning a one dimensional array frequency coefficient located at p=15 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=3 and m=3.

45. The method of claim 44, further comprising:

scanning each of said number of groups of sixteen one dimensional array frequency coefficients in said numerical sequential order, said scanning starting at p=0 and ending at p=15; and

producing said two dimensional array of said two dimensional array frequency coefficients.

46. The method of claim 45, wherein, for each of said number of groups of sixteen one dimensional array frequency coefficients, said step of scanning said each of said number of groups of sixteen one dimensional array frequency coefficients further comprises:

assigning a two dimensional array frequency coefficient located at n=0 and m=0 in a corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=0;

assigning a two dimensional array frequency coefficient located at n=0 and m=1 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=1;

assigning a two dimensional array frequency coefficient located at n=1 and m=0 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=2;

assigning a two dimensional array frequency coefficient located at n=0 and m=2 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=3;

assigning a two dimensional array frequency coefficient located at n=0 and m=3 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=4;

assigning a two dimensional array frequency coefficient located at n=1 and m=1 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=5;

assigning a two dimensional array frequency coefficient located at n=1 and m=2 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=6;

assigning a two dimensional array frequency coefficient located at n=1 and m=3 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=7;

assigning a two dimensional array frequency coefficient located at n=2 and m=0 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=8;

assigning a two dimensional array frequency coefficient located at n=2 and m=1 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=9;

assigning a two dimensional array frequency coefficient located at n=2 and m=2 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=10;

assigning a two dimensional array frequency coefficient located at n=2 and m=3 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=11;

assigning a two dimensional array frequency coefficient located at n=3 and m=0 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=12;

assigning a two dimensional array frequency coefficient located at n=3 and m=1 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=13;

assigning a two dimensional array frequency coefficient located at n=3 and m=2 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=14; and

assigning a two dimensional array frequency coefficient located at n=3 and m=3 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=15.

47. The method of claim 44, wherein if said two dimensional array of said two dimensional array frequency coefficients comprises four columns and four rows of said two dimensional array frequency coefficients:

said step of dividing said two dimensional array into a number of four by four blocks of two dimensional array frequency coefficients comprises dividing said two dimensional

array into a single four by four block comprising all of said two dimensional array frequency coefficients in said two dimensional array.

48. The method of claim 47, wherein:

said one dimensional array of said one dimensional array frequency coefficients comprises 16 one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array, wherein a first one dimensional array frequency coefficient of said one dimensional array is at position 0 and a sixteenth one dimensional array frequency coefficient of said one dimensional array is at position 15; and

said number of groups of sixteen one dimensional array frequency coefficients comprises a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array, said first group being said corresponding group of sixteen one dimensional array frequency coefficients for said single four by four block.

49. The method of claim 48, wherein:

said two dimensional array frequency coefficients of said single four by four block are scanned using said step of scanning said two dimensional array frequency coefficients.

50. The method of claim 46, wherein if said one dimensional array of one dimensional array frequency coefficients comprises 16 one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array, said two dimensional array of said two dimensional array frequency coefficients comprises four columns and four rows of said two dimensional array frequency coefficients and said number of groups of sixteen one dimensional array frequency coefficients comprises:

a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array.

51. The method of claim 50, wherein:

said first group's said corresponding four by four block of said two dimensional array

frequency coefficients is a single four by four block comprising said all of said two dimensional array frequency coefficients in said two dimensional array.

52. The method of claim 44, wherein if said two dimensional array of said two dimensional array frequency coefficients comprises four columns and eight rows of said two dimensional array frequency coefficients:

said step of dividing said two dimensional array into a number of four by four blocks of two dimensional array frequency coefficients comprises dividing said two dimensional array into a top four by four block comprising the top four rows of said two dimensional array frequency coefficients in said two dimensional array and a bottom four by four block comprising the bottom four rows of said two dimensional array frequency coefficients in said two dimensional array.

53. The method of claim 52, wherein:

said one dimensional array of said one dimensional array frequency coefficients comprises 32 one dimensional array frequency coefficients at positions 0 through 31 in said one dimensional array, wherein a first one dimensional array frequency coefficient of said one dimensional array is at position 0 and a thirty-second one dimensional array frequency coefficient of said one dimensional array is at position 31; and

said number of groups of sixteen one dimensional array frequency coefficients comprises a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array and a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array, said first group being said corresponding group of sixteen one dimensional array frequency coefficients for said top four by four block and said second group being said corresponding group of sixteen one dimensional array frequency coefficients for said bottom four by four block.

54. The method of claim 53, wherein:

said two dimensional array frequency coefficients of said top four by four block are scanned first using said step of scanning said two dimensional array frequency coefficients; and

said two dimensional array frequency coefficients of said bottom four by four block are scanned second using said step of scanning said two dimensional array frequency coefficients.

55. The method of claim 46, wherein if said one dimensional array of said one dimensional array frequency coefficients comprises 32 one dimensional array frequency coefficients at positions 0 through 31 in said one dimensional array, said two dimensional array of said two dimensional array frequency coefficients comprises four columns and eight rows of said two dimensional array frequency coefficients and said number of groups of sixteen one dimensional array frequency coefficients comprises:

a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array; and

a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array.

56. The method of claim 55, wherein:

said first group's said corresponding four by four block of said two dimensional array frequency coefficients is a top four by four block comprising the top four rows of said two dimensional array frequency coefficients in said two dimensional array; and

said second group's said corresponding four by four block of said two dimensional array frequency coefficients is a bottom four by four block comprising the bottom four rows of said two dimensional array frequency coefficients in said two dimensional array.

57. The method of claim 44, wherein if said two dimensional array of said two dimensional array frequency coefficients comprises eight columns and four rows of said two dimensional array frequency coefficients:

said step of dividing said two dimensional array into a number of four by four blocks of two dimensional array frequency coefficients comprises dividing said two dimensional array into a left four by four block comprising the left-most four columns of said two dimensional array frequency coefficients in said two dimensional array and a right four by four block comprising the right-most four columns of said two dimensional array frequency coefficients in said two dimensional array.

58. The method of claim 57, wherein:

said one dimensional array of said one dimensional array frequency coefficients comprises 32 one dimensional array frequency coefficients at positions 0 through 31 in said one dimensional array, wherein a first one dimensional array frequency coefficient of said one dimensional array is at position 0 and a thirty-second one dimensional array frequency coefficient of said one dimensional array is at position 31; and

said number of groups of sixteen one dimensional array frequency coefficients comprises a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array and a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array, said first group being said corresponding group of sixteen one dimensional array frequency coefficients for said left four by four block and said second group being said corresponding group of sixteen one dimensional array frequency coefficients for said right four by four block.

59. The method of claim 58, wherein:

said two dimensional array frequency coefficients of said left four by four block are scanned first using said step of scanning said two dimensional array frequency coefficients; and

said two dimensional array frequency coefficients of said right four by four block are scanned second using said step of scanning said two dimensional array frequency coefficients.

60. The method of claim 46, wherein if said one dimensional array of said one dimensional array frequency coefficients comprises 32 one dimensional array frequency

coefficients at positions 0 through 31 in said one dimensional array, said two dimensional array of said two dimensional array frequency coefficients comprises eight columns and four rows of said two dimensional array frequency coefficients and said number of groups of sixteen one dimensional array frequency coefficients comprises:

a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array; and

a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array.

61. The method of claim 60, wherein:

said first group's said corresponding four by four block of said two dimensional array frequency coefficients is a left four by four block comprising the left-most four columns of said two dimensional array frequency coefficients in said two dimensional array; and

said second group's said corresponding four by four block of said two dimensional array frequency coefficients is a right four by four block comprising the right-most four columns of said two dimensional array frequency coefficients in said two dimensional array.

62. The method of claim 44, wherein if said two dimensional array of said two dimensional array frequency coefficients comprises eight columns and eight rows of said two dimensional array frequency coefficients, said step of dividing said two dimensional array into a number of four by four blocks of two dimensional array frequency coefficients comprises dividing said two dimensional array into:

a top-left four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the left-most four columns of said two dimensional array;

a top-right four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the right-most four columns of said two dimensional array;

a bottom-left four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the left-most four columns of said two dimensional array; and

a bottom-right four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the right-most four columns of said two dimensional array.

63. The method of claim 62, wherein:

said one dimensional array of said one dimensional array frequency coefficients comprises 64 frequency coefficients at positions 0 through 63 in said one dimensional array, wherein a first one dimensional array frequency coefficient of said one dimensional array is at position 0 and a sixty-fourth one dimensional array frequency coefficient of said one dimensional array is at position 63; and

said number of groups of sixteen one dimensional array frequency coefficients comprises a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array, a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array, a third group comprising one dimensional array frequency coefficients at positions 32 through 47 in said one dimensional array, and a fourth group comprising one dimensional array frequency coefficients at positions 48 through 63 in said one dimensional array, said first group being said corresponding group of sixteen one dimensional array frequency coefficients for said top-left four by four block, said second group being said corresponding group of sixteen one dimensional array frequency coefficients for said top-right four by four block, said third group being said corresponding group of sixteen one dimensional array frequency coefficients for said bottom-left four by four block, said fourth group being said corresponding group of sixteen one dimensional array frequency coefficients for said bottom-right four by four block.

64. The method of claim 63, wherein:

said two dimensional array frequency coefficients of said top-left four by four block are scanned first using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said top-right four by four block are scanned second using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said bottom-left four by four block are scanned third using said step of scanning said two dimensional array frequency coefficients; and

said two dimensional array frequency coefficients of said bottom-right four by four block are scanned fourth using said step of scanning said two dimensional array frequency coefficients.

65. The method of claim 46, wherein if said one dimensional array of said one dimensional array frequency coefficients comprises 64 one dimensional array frequency coefficients at positions 0 through 63 in said one dimensional array, said two dimensional array of said two dimensional array frequency coefficients comprises eight columns and eight rows of said two dimensional array frequency coefficients and said number of groups of sixteen one dimensional array frequency coefficients comprises:

a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array;

a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array;

a third group comprising one dimensional array frequency coefficients at positions 32 through 47 in said one dimensional array; and

a fourth group comprising one dimensional array frequency coefficients at positions 48 through 63 in said one dimensional array.

66. The method of claim 65, wherein:

said first group's said corresponding four by four block of said two dimensional array frequency coefficients is a top-left four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the left-most four columns of said two dimensional array;

said second group's said corresponding four by four block of said two dimensional array frequency coefficients is a top-right four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the right-most four columns of said two dimensional array;

said third group's said corresponding four by four block of said two dimensional array frequency coefficients is a bottom-left four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the left-most four columns of said two dimensional array; and

said fourth group's said corresponding four by four block of said two dimensional array frequency coefficients is said bottom-right four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the right-most four columns of said two dimensional array.

67. The method of claim 44, wherein if said two dimensional array of said two dimensional array frequency coefficients comprises eight columns and sixteen rows of said two dimensional array frequency coefficients, said step of dividing said two dimensional array into a number of four by four blocks of two dimensional array frequency coefficients comprises dividing said two dimensional array into:

a first four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the left-most four columns of said two dimensional array;

a second four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the right-most four columns of said two dimensional array;

a third four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows from the top of said two dimensional array and in the left-most four columns of said two dimensional array;

a fourth four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows from the top of said two dimensional array and in the right-most four columns of said two dimensional array;

a fifth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows from the top of said two dimensional array and in the left-most four columns of said two dimensional array;

a sixth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows from the top of said two dimensional array and in the right-most four columns of said two dimensional array;

a seventh four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the left-most four columns of said two dimensional array; and

an eighth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the right-most four columns of said two dimensional array.

68. The method of claim 67, wherein:

said one dimensional array of said one dimensional array frequency coefficients comprises 128 one dimensional array frequency coefficients at positions 0 through 127 in said one dimensional array, wherein a first one dimensional array frequency coefficient of said one dimensional array is at position 0 and a one hundred and twenty-eighth one dimensional array frequency coefficient of said one dimensional array is at position 127; and

said number of groups of sixteen one dimensional array frequency coefficients comprises a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array, a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array, a third group comprising one dimensional array frequency coefficients at positions 32 through 47 in said one dimensional array, a fourth group comprising one dimensional array frequency coefficients at positions 48 through 63 in said one dimensional array, a fifth group comprising one dimensional array frequency coefficients at positions 64 through 79 in said one dimensional array, a sixth group comprising one dimensional array frequency coefficients at positions 80 through 95 in said one dimensional array, a seventh group comprising one dimensional array frequency coefficients at positions 96 through 111 in said one dimensional array, and an eighth group comprising one dimensional array frequency coefficients at positions 112 through 127 in said one dimensional array, said first group being said corresponding group of sixteen one dimensional array frequency coefficients for said first four by four block, said second group being said corresponding group of sixteen one

dimensional array frequency coefficients for said second four by four block, said third group being said corresponding group of sixteen one dimensional array frequency coefficients for said third four by four block, said fourth group being said corresponding group of sixteen one dimensional array frequency coefficients for said fourth four by four block, said fifth group being said corresponding group of sixteen one dimensional array frequency coefficients for said fifth four by four block, said sixth group being said corresponding group of sixteen one dimensional array frequency coefficients for said sixth four by four block, said seventh group being said corresponding group of sixteen one dimensional array frequency coefficients for said seventh four by four block, said eighth group being said corresponding group of sixteen one dimensional array frequency coefficients for said eighth four by four block.

69. The method of claim 68, wherein:

said two dimensional array frequency coefficients of said first four by four block are scanned first using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said second four by four block are scanned second using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said third four by four block are scanned third using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said fourth four by four block are scanned fourth using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said fifth four by four block are scanned fifth using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said sixth four by four block are scanned sixth using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said seventh four by four block are scanned seventh using said step of scanning said two dimensional array frequency coefficients; and

said two dimensional array frequency coefficients of said eighth four by four block are scanned eighth using said step of scanning said two dimensional array frequency coefficients.

70. The method of claim 46, wherein if said one dimensional array of said one dimensional array frequency coefficients comprises 128 one dimensional array frequency coefficients at positions 0 through 127 in said one dimensional array, said two dimensional array of said two dimensional array frequency coefficients comprises eight columns and sixteen rows of said two dimensional array frequency coefficients and said number of groups of sixteen one dimensional array frequency coefficients comprises:

a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array;

a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array;

a third group comprising one dimensional array frequency coefficients at positions 32 through 47 in said one dimensional array;

a fourth group comprising one dimensional array frequency coefficients at positions 48 through 63 in said one dimensional array;

a fifth group comprising one dimensional array frequency coefficients at positions 64 through 79 in said one dimensional array;

a sixth group comprising one dimensional array frequency coefficients at positions 80 through 95 in said one dimensional array;

a seventh group comprising one dimensional array frequency coefficients at positions 96 through 111 in said one dimensional array; and

an eighth group comprising one dimensional array frequency coefficients at positions 112 through 127 in said one dimensional array.

71. The method of claim 70, wherein:

said first group's said corresponding four by four block of said two dimensional array frequency coefficients is a first four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the left-most four columns of said two dimensional array;

said second group's said corresponding four by four block of said two dimensional array frequency coefficients is a second four by four block comprising said two dimensional

array frequency coefficients in both the top four rows and in the right-most four columns of said two dimensional array;

said third group's said corresponding four by four block of said two dimensional array frequency coefficients is a third four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh from the top of said two dimensional array and in the left-most four columns of said two dimensional array;

said fourth group's said corresponding four by four block of said two dimensional array frequency coefficients is a fourth four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows from the top of said two dimensional array and in the right-most four columns of said two dimensional array;

said fifth group's said corresponding four by four block of said two dimensional array frequency coefficients is a fifth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows from the top of said two dimensional array and in the left-most four columns of said two dimensional array;

said sixth group's said corresponding four by four block of said two dimensional array frequency coefficients is a sixth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows from the top of said two dimensional array and in the right-most four columns of said two dimensional array;

said seventh group's said corresponding four by four block of said two dimensional array frequency coefficients is a seventh four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the left-most four columns of said two dimensional array; and

said eighth group's said corresponding four by four block of said two dimensional array frequency coefficients is an eighth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the right-most four columns of said two dimensional array.

72. The method of claim 44, wherein if said two dimensional array of said two dimensional array frequency coefficients comprises sixteen columns and eight rows of said two dimensional array frequency coefficients, said step of dividing said two dimensional

array into a number of four by four blocks of two dimensional array frequency coefficients comprises dividing said two dimensional array into:

a first four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the left-most four columns of said two dimensional array;

a second four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the fourth through seventh columns of said two dimensional array;

a third four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the first four columns of said two dimensional array;

a fourth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the fourth through seventh columns of said two dimensional array;

a fifth four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the eighth through eleventh columns of said two dimensional array;

a sixth four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the right-most four columns of said two dimensional array;

a seventh four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the eighth through eleventh columns of said two dimensional array; and

an eighth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the right-most four columns of said two dimensional array.

73. The method of claim 72, wherein:

said one dimensional array of said one dimensional array frequency coefficients comprises 128 one dimensional array frequency coefficients at positions 0 through 127 in said one dimensional array, wherein a first one dimensional array frequency coefficient of said one

dimensional array is at position 0 and a one hundred and twenty-eighth one dimensional array frequency coefficient of said one dimensional array is at position 127; and

said number of groups of sixteen one dimensional array frequency coefficients comprises a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array, a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array, a third group comprising one dimensional array frequency coefficients at positions 32 through 47 in said one dimensional array, a fourth group comprising one dimensional array frequency coefficients at positions 48 through 63 in said one dimensional array, a fifth group comprising one dimensional array frequency coefficients at positions 64 through 79 in said one dimensional array, a sixth group comprising one dimensional array frequency coefficients at positions 80 through 95 in said one dimensional array, a seventh group comprising one dimensional array frequency coefficients at positions 96 through 111 in said one dimensional array, and an eighth group comprising one dimensional array frequency coefficients at positions 112 through 127 in said one dimensional array, said first group being said corresponding group of sixteen one dimensional array frequency coefficients for said first four by four block, said second group being said corresponding group of sixteen one dimensional array frequency coefficients for said second four by four block, said third group being said corresponding group of sixteen one dimensional array frequency coefficients for said third four by four block, said fourth group being said corresponding group of sixteen one dimensional array frequency coefficients for said fourth four by four block, said fifth group being said corresponding group of sixteen one dimensional array frequency coefficients for said fifth four by four block, said sixth group being said corresponding group of sixteen one dimensional array frequency coefficients for said sixth four by four block, said seventh group being said corresponding group of sixteen one dimensional array frequency coefficients for said seventh four by four block, said eighth group being said corresponding group of sixteen one dimensional array frequency coefficients for said eighth four by four block.

74. The method of claim 73, wherein:

said two dimensional array frequency coefficients of said first four by four block are scanned first using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said second four by four block are scanned second using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said third four by four block are scanned third using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said fourth four by four block are scanned fourth using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said fifth four by four block are scanned fifth using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said sixth four by four block are scanned sixth using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said seventh four by four block are scanned seventh using said step of scanning said two dimensional array frequency coefficients; and

said two dimensional array frequency coefficients of said eighth four by four block are scanned eighth using said step of scanning said two dimensional array frequency coefficients.

75. The method of claim 46, wherein if said one dimensional array of said one dimensional array frequency coefficients comprises 128 one dimensional array frequency coefficients at positions 0 through 127 in said one dimensional array, said two dimensional array of said two dimensional array frequency coefficients comprises eight columns and sixteen rows of said two dimensional array frequency coefficients and said number of groups of sixteen one dimensional array frequency coefficients comprises:

a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array;

a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array;

a third group comprising one dimensional array frequency coefficients at positions 32 through 47 in said one dimensional array;

a fourth group comprising one dimensional array frequency coefficients at positions 48 through 63 in said one dimensional array;

a fifth group comprising one dimensional array frequency coefficients at positions 64 through 79 in said one dimensional array;

a sixth group comprising one dimensional array frequency coefficients at positions 80 through 95 in said one dimensional array;

a seventh group comprising one dimensional array frequency coefficients at positions 96 through 111 in said one dimensional array; and

an eighth group comprising one dimensional array frequency coefficients at positions 112 through 127 in said one dimensional array.

76. The method of claim 75, wherein:

said first group's said corresponding four by four block of said two dimensional array frequency coefficients is a first four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the left-most four columns of said two dimensional array;

said second group's said corresponding four by four block of said two dimensional array frequency coefficients is a second four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the fourth through seventh columns of said two dimensional array;

said third group's said corresponding four by four block of said two dimensional array frequency coefficients is a third four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the first four columns of said two dimensional array;

said fourth group's said corresponding four by four block of said two dimensional array frequency coefficients is a fourth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the fourth through seventh columns of said two dimensional array;

said fifth group's said corresponding four by four block of said two dimensional array frequency coefficients is a fifth four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the eighth through eleventh columns of said two dimensional array;

said sixth group's said corresponding four by four block of said two dimensional array frequency coefficients is a sixth four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the right-most four columns of said two dimensional array;

said seventh group's said corresponding four by four block of said two dimensional array frequency coefficients is a seventh four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the eighth through eleventh columns of said two dimensional array; and

said eighth group's said corresponding four by four block of said two dimensional array frequency coefficients is an eighth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the right-most four columns of said two dimensional array.

77. The method of claim 44, wherein if said two dimensional array of said two dimensional array frequency coefficients comprises sixteen columns and sixteen rows of said two dimensional array frequency coefficients, said step of dividing said two dimensional array into a number of four by four blocks of two dimensional array frequency coefficients comprises dividing said two dimensional array into:

a first four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the left-most four columns of said two dimensional array;

a second four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the fourth through seventh columns of said two dimensional array;

a third four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows four rows and in the first four columns of said two dimensional array;

a fourth four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows and in the fourth through seventh columns of said two dimensional array;

a fifth four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the eighth through eleventh columns of said two dimensional array;

a sixth four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the right-most four columns of said two dimensional array;

a seventh four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows and in the eighth through eleventh columns of said two dimensional array;

an eighth four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows and in the right-most four columns of said two dimensional array;

a ninth four by four block comprising said two dimensional array frequency coefficients in the eighth through eleventh rows and in the left-most four columns of said two dimensional array;

a tenth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows and in the fourth through seventh columns of said two dimensional array;

an eleventh four by four block comprising said two dimensional array frequency coefficients in the bottom four rows and in the first four columns of said two dimensional array;

a twelfth fourth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the fourth through seventh columns of said two dimensional array;

a thirteenth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows and in the eighth through eleventh columns of said two dimensional array;

a fourteenth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows and in the right-most four columns of said two dimensional array;

a fifteenth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the eighth through eleventh columns of said two dimensional array; and

a sixteenth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the right-most four columns of said two dimensional array.

78. The method of claim 77, wherein:

said one dimensional array of said one dimensional array frequency coefficients comprises 256 one dimensional array frequency coefficients at positions 0 through 255 in said one dimensional array, wherein a first one dimensional array frequency coefficient of said one dimensional array is at position 0 and a two hundred and fifth-sixth one dimensional array frequency coefficient of said one dimensional array is at position 255; and

said number of groups of sixteen one dimensional array frequency coefficients comprises a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array, a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array, a third group comprising one dimensional array frequency coefficients at positions 32 through 47 in said one dimensional array, a fourth group comprising one dimensional array frequency coefficients at positions 48 through 63 in said one dimensional array, a fifth group comprising one dimensional array frequency coefficients at positions 64 through 79 in said one dimensional array, a sixth group comprising one dimensional array frequency coefficients at positions 80 through 95 in said one dimensional array, a seventh group comprising one dimensional array frequency coefficients at positions 96 through 111 in said one dimensional array, and an eighth group comprising one dimensional array frequency coefficients at positions 112 through 127 in said one dimensional array, a ninth group comprising one dimensional array frequency coefficients at positions 128 through 143 in said one dimensional array, a tenth group comprising one dimensional array frequency coefficients at positions 144 through 159 in said one dimensional array, an eleventh group comprising one dimensional array frequency coefficients at positions 160 through 175 in said one dimensional array, a twelfth group comprising one dimensional array frequency coefficients

at positions 176 through 191 in said one dimensional array, a thirteenth group comprising one dimensional array frequency coefficients at positions 192 through 207 in said one dimensional array, a fourteenth group comprising one dimensional array frequency coefficients at positions 208 through 223 in said one dimensional array, a fifteenth group comprising one dimensional array frequency coefficients at positions 224 through 239 in said one dimensional array, and a sixteenth group comprising one dimensional array frequency coefficients at positions 240 through 255 in said one dimensional array, said first group being said corresponding group of sixteen one dimensional array frequency coefficients for said first four by four block, said second group being said corresponding group of sixteen one dimensional array frequency coefficients for said second four by four block, said third group being said corresponding group of sixteen one dimensional array frequency coefficients for said third four by four block, said fourth group being said corresponding group of sixteen one dimensional array frequency coefficients for said fourth four by four block, said fifth group being said corresponding group of sixteen one dimensional array frequency coefficients for said fifth four by four block, said sixth group being said corresponding group of sixteen one dimensional array frequency coefficients for said sixth four by four block, said seventh group being said corresponding group of sixteen one dimensional array frequency coefficients for said seventh four by four block, said eighth group being said corresponding group of sixteen one dimensional array frequency coefficients for said eighth four by four block, said ninth group being said corresponding group of sixteen one dimensional array frequency coefficients for said ninth four by four block, said tenth group being said corresponding group of sixteen one dimensional array frequency coefficients for said tenth four by four block, said eleventh group being said corresponding group of sixteen one dimensional array frequency coefficients for said eleventh four by four block, said twelfth group being said corresponding group of sixteen one dimensional array frequency coefficients for said twelfth four by four block, said thirteenth group being said corresponding group of sixteen one dimensional array frequency coefficients for said thirteenth four by four block, said fourteenth group being said corresponding group of sixteen one dimensional array frequency coefficients for said fourteenth four by four block, said fifteenth group being said corresponding group of sixteen one dimensional array frequency coefficients for said fifteenth four by four block, said

sixteenth group being said corresponding group of sixteen one dimensional array frequency coefficients for said sixteenth four by four block.

79. The method of claim 78, wherein:

said two dimensional array frequency coefficients of said first four by four block are scanned first using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said second four by four block are scanned second using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said third four by four block are scanned third using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said fourth four by four block are scanned fourth using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said fifth four by four block are scanned fifth using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said sixth four by four block are scanned sixth using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said seventh four by four block are scanned seventh using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said eighth four by four block are scanned eighth using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said ninth four by four block are scanned ninth using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said tenth four by four block are scanned tenth using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said eleventh four by four block are scanned eleventh using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said twelfth four by four block are scanned twelfth using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said thirteenth four by four block are scanned thirteenth using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said fourteenth four by four block are scanned fourteenth using said step of scanning said two dimensional array frequency coefficients;

said two dimensional array frequency coefficients of said fifteenth four by four block are scanned fifteenth using said step of scanning said two dimensional array frequency coefficients; and

said two dimensional array frequency coefficients of said sixteenth four by four block are scanned sixteenth using said step of scanning said two dimensional array frequency coefficients.

80. The method of claim 46, wherein if said one dimensional array of said one dimensional array frequency coefficients comprises 256 one dimensional array frequency coefficients at positions 0 through 255 in said one dimensional array, said two dimensional array of said two dimensional array frequency coefficients comprises sixteen columns and sixteen rows of said two dimensional array frequency coefficients and said number of groups of sixteen one dimensional array frequency coefficients comprises:

a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array;

a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array;

a third group comprising one dimensional array frequency coefficients at positions 32 through 47 in said one dimensional array;

a fourth group comprising one dimensional array frequency coefficients at positions 48 through 63 in said one dimensional array;

a fifth group comprising one dimensional array frequency coefficients at positions 64 through 79 in said one dimensional array;

a sixth group comprising one dimensional array frequency coefficients at positions 80 through 95 in said one dimensional array;

a seventh group comprising one dimensional array frequency coefficients at positions 96 through 111 in said one dimensional array;

an eighth group comprising one dimensional array frequency coefficients at positions 112 through 127 in said one dimensional array;

a ninth group comprising one dimensional array frequency coefficients at positions 128 through 143 in said one dimensional array;

a tenth group comprising one dimensional array frequency coefficients at positions 144 through 159 in said one dimensional array;

an eleventh group comprising one dimensional array frequency coefficients at positions 160 through 175 in said one dimensional array;

a twelfth group comprising one dimensional array frequency coefficients at positions 176 through 191 in said one dimensional array;

a thirteenth group comprising one dimensional array frequency coefficients at positions 192 through 207 in said one dimensional array;

a fourteenth group comprising one dimensional array frequency coefficients at positions 208 through 223 in said one dimensional array;

a fifteenth group comprising one dimensional array frequency coefficients at positions 224 through 239 in said one dimensional array; and

a sixteenth group comprising one dimensional array frequency coefficients at positions 240 through 255 in said one dimensional array.

81. The method of claim 80, wherein:

said first group's said corresponding four by four block of said two dimensional array frequency coefficients is a first four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the left-most four columns of said two dimensional array;

said second group's said corresponding four by four block of said two dimensional array frequency coefficients is a second four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the fourth through seventh columns of said two dimensional array;

said third group's said corresponding four by four block of said two dimensional array frequency coefficients is a third four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows four rows and in the first four columns of said two dimensional array;

said fourth group's said corresponding four by four block of said two dimensional array frequency coefficients is a fourth four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows and in the fourth through seventh columns of said two dimensional array;

said fifth group's said corresponding four by four block of said two dimensional array frequency coefficients is a fifth four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the eighth through eleventh columns of said two dimensional array;

said sixth group's said corresponding four by four block of said two dimensional array frequency coefficients is a sixth four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the right-most four columns of said two dimensional array;

said seventh group's said corresponding four by four block of said two dimensional array frequency coefficients is a seventh four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows and in the eighth through eleventh columns of said two dimensional array;

said eighth group's said corresponding four by four block of said two dimensional array frequency coefficients is an eighth four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows and in the right-most four columns of said two dimensional array;

said ninth group's said corresponding four by four block of said two dimensional array frequency coefficients is a ninth four by four block comprising said two dimensional array

frequency coefficients in the eighth through eleventh rows and in the left-most four columns of said two dimensional array;

said tenth group's said corresponding four by four block of said two dimensional array frequency coefficients is a tenth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows and in the fourth through seventh columns of said two dimensional array;

said eleventh group's said corresponding four by four block of said two dimensional array frequency coefficients is an eleventh four by four block comprising said two dimensional array frequency coefficients in the bottom four rows and in the first four columns of said two dimensional array;

said twelfth group's said corresponding four by four block of said two dimensional array frequency coefficients is a twelfth fourth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the fourth through seventh columns of said two dimensional array;

said thirteenth group's said corresponding four by four block of said two dimensional array frequency coefficients is a thirteenth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows and in the eighth through eleventh columns of said two dimensional array;

said fourteenth group's said corresponding four by four block of said two dimensional array frequency coefficients is a fourteenth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows and in the right-most four columns of said two dimensional array;

said fifteenth group's said corresponding four by four block of said two dimensional array frequency coefficients is a fifteenth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the eighth through eleventh columns of said two dimensional array;

said sixteenth group's said corresponding four by four block of said two dimensional array frequency coefficients is a sixteenth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the right-most four columns of said two dimensional array.

82. The method of claim 2, wherein if said original two dimensional array of said frequency coefficients comprises eight columns of frequency coefficients and eight rows of said two dimensional array frequency coefficients, said method further comprises:

scanning first a top-left four by four block of frequency coefficients with said scanning order, said top-left four by four block comprising frequency coefficients located in an area covered by four top-most rows and four left-most columns in said original two dimensional array;

scanning second a top-right four by four block of frequency coefficients with said scanning order, said top-right four by four block comprising frequency coefficients located in an area covered both by four top-most rows and four right-most columns in said original two dimensional array;

scanning third a bottom-left four by four block of frequency coefficients with said scanning order, said bottom-left four by four block comprising frequency coefficients located in an area covered both by four bottom-most rows and four left-most columns in said original two dimensional array; and

scanning fourth a bottom-right four by four block of frequency coefficients with said scanning order, said bottom-right four by four block comprising frequency coefficients located in an area covered both by four bottom-most rows and four right-most columns in said original two dimensional array.

83. The method of claim 1, wherein said pixels are encoded using context-based adaptive variable length coding (CAVLC), context-based adaptive binary arithmetic coding (CABAC), or universal variable length codeword (UVLC).

84. A device comprising an encoder for transform-based encoding of digital video content, said digital video content comprising a stream of pictures, slices, or macroblocks in the form of blocks of pixels, each of said blocks of pixels having a corresponding two dimensional array of two dimensional array frequency coefficients, wherein, for each of said blocks, said encoder:

divides said two dimensional array of said two dimensional array frequency coefficients into a number of four by four blocks of two dimensional array frequency

coefficients, said number of four by four blocks each comprising 4 columns and 4 rows of said two dimensional array frequency coefficients;

scans said two dimensional array frequency coefficients in each of said number of four by four blocks with a pre-determined scanning order, said scanning order sequentially starting at 0 and ending at 15; and

produces a one dimensional array of one dimensional array frequency coefficients.

85. The device of claim 84, wherein said encoder:

represents said columns of said number of four by four blocks with a variable n=0, 1, 2, or 3, wherein n=0 is at least one of a first or leftmost column, n=1 is a second column, n=2 is a third column, and n=3 is at least one of a fourth or rightmost column; and

represents said rows of said number of four by four blocks with a variable m=0, 1, 2, or 3, wherein m=0 is at least one of a first or top row, m=1 is a second row, m=2 is a third row, and m=3 is at least one of a fourth or bottom row.

86. The device of claim 85, wherein said one dimensional array comprises a number of groups of sixteen one dimensional array frequency coefficients, said number of groups corresponding to said number of said four by four blocks of said two dimensional array frequency coefficients, wherein said sixteen one dimensional array frequency coefficients in each of said groups are represented with a variable p=0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, in a numerical sequential order, wherein a first one dimensional array frequency coefficient in said group is represented by p=0 and a sixteenth one dimensional array frequency coefficient in said group is represented by p=15.

87. The device of claim 86, wherein, in scanning said two dimensional array frequency coefficients in each of said number of four by four blocks, if said block of pixels is to be encoded in frame mode, said encoder:

assigns a scanning order = 0 to a two dimensional array frequency coefficient located at n=0 and m=0;

assigns a scanning order = 1 to a two dimensional array frequency coefficient located at n=1 and m=0;

assigns a scanning order = 2 to a two dimensional array frequency coefficient located at n=0 and m=1;

assigns a scanning order = 3 to a two dimensional array frequency coefficient located at n=0 and m=2;

assigns a scanning order = 4 to a two dimensional array frequency coefficient located at n=1 and m=1;

assigns a scanning order = 5 to a two dimensional array frequency coefficient located at n=2 and m=0;

assigns a scanning order = 6 to a two dimensional array frequency coefficient located at n=3 and m=0;

assigns a scanning order = 7 to a two dimensional array frequency coefficient located at n=2 and m=1;

assigns a scanning order = 8 to a two dimensional array frequency coefficient located at n=1 and m=2;

assigns a scanning order = 9 to a two dimensional array frequency coefficient located at n=0 and m=3;

assigns a scanning order = 10 to a two dimensional array frequency coefficient located at n=1 and m=3;

assigns a scanning order = 11 to a two dimensional array frequency coefficient located at n=2 and m=2;

assigns a scanning order = 12 to a two dimensional array frequency coefficient located at n=3 and m=1;

assigns a scanning order = 13 to a two dimensional array frequency coefficient located at n=3 and m=2;

assigns a scanning order = 14 to a two dimensional array frequency coefficient located at n=2 and m=3; and

assigns a scanning order = 15 to a two dimensional array frequency coefficient located at n=3 and m=3.

88. The device of claim 87, wherein in scanning said two dimensional array frequency coefficients in each of said number of four by four blocks, said encoder further:

assigns a one dimensional array frequency coefficient located at p=0 in a corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=0 and m=0.

assigns a one dimensional array frequency coefficient located at p=1 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=1 and m=0;

assigns a one dimensional array frequency coefficient located at p=2 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=0 and m=1;

assigns a one dimensional array frequency coefficient located at p=3 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=0 and m=2;

assigns a one dimensional array frequency coefficient located at p=4 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=1 and m=1;

assigns a one dimensional array frequency coefficient located at p=5 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=2 and m=0;

assigns a one dimensional array frequency coefficient located at p=6 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=3 and m=0;

assigns a one dimensional array frequency coefficient located at p=7 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=2 and m=1;

assigns a one dimensional array frequency coefficient located at p=8 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=1 and m=2;

assigns a one dimensional array frequency coefficient located at p=9 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=0 and m=3;

assigns a one dimensional array frequency coefficient located at p=10 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=1 and m=3;

assigns a one dimensional array frequency coefficient located at p=11 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=2 and m=2;

assigns a one dimensional array frequency coefficient located at p=12 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=3 and m=1;

assigns a one dimensional array frequency coefficient located at p=13 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=3 and m=2;

assigns a one dimensional array frequency coefficient located at p=14 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=2 and m=3; and

assigns a one dimensional array frequency coefficient located at p=15 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=3 and m=3.

89. The device of claim 88, wherein, in dividing said two dimensional array of said two dimensional array frequency coefficients into a number of four by four blocks, if said two dimensional array of said two dimensional array frequency coefficients comprises four columns and four rows of said two dimensional array frequency coefficients, said encoder:

divides said two dimensional array into a single four by four block comprising all of said two dimensional array frequency coefficients in said two dimensional array.

90. The device of claim 89, wherein:

said one dimensional array of said one dimensional array frequency coefficients comprises 16 one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array, wherein a first one dimensional array frequency coefficient of said one

dimensional array is at position 0 and a sixteenth one dimensional array frequency coefficient of said one dimensional array is at position 15; and

said number of groups of sixteen one dimensional array frequency coefficients comprises a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array, said first group being said corresponding group of sixteen one dimensional array frequency coefficients for said single four by four block.

91. The device of claim 90, wherein said encoder:

scans said two dimensional array frequency coefficients of said single four by four block.

92. The device of claim 88, wherein, in dividing said two dimensional array of said two dimensional array frequency coefficients into a number of four by four blocks, if said two dimensional array of said two dimensional array frequency coefficients comprises four columns and eight rows of said two dimensional array frequency coefficients, said encoder:

divides said two dimensional array into a top four by four block comprising the top four rows of said two dimensional array frequency coefficients in said two dimensional array and a bottom four by four block comprising the bottom four rows of said two dimensional array frequency coefficients in said two dimensional array.

93. The device of claim 92, wherein:

said one dimensional array of said one dimensional array frequency coefficients comprises 32 one dimensional array frequency coefficients at positions 0 through 31 in said one dimensional array, wherein a first one dimensional array frequency coefficient of said one dimensional array is at position 0 and a thirty-second one dimensional array frequency coefficient of said one dimensional array is at position 31; and

said number of groups of sixteen one dimensional array frequency coefficients comprises a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array and a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array, said first group being said corresponding group of sixteen one dimensional array frequency

coefficients for said top four by four block and said second group being said corresponding group of sixteen one dimensional array frequency coefficients for said bottom four by four block.

94. The device of claim 93, wherein said encoder:

scans said two dimensional array frequency coefficients of said top four by four block first; and

scans said two dimensional array frequency coefficients of said bottom four by four block second.

95. The device of claim 88, wherein, in dividing said two dimensional array of said two dimensional array frequency coefficients into a number of four by four blocks, if said two dimensional array of said two dimensional array frequency coefficients comprises eight columns and four rows of said two dimensional array frequency coefficients, said encoder:

divides said two dimensional array into a left four by four block comprising the left-most four columns of said two dimensional array frequency coefficients in said two dimensional array and a right four by four block comprising the right-most four columns of said two dimensional array frequency coefficients in said two dimensional array.

96. The device of claim 95, wherein:

said one dimensional array of said one dimensional array frequency coefficients comprises 32 one dimensional array frequency coefficients at positions 0 through 31 in said one dimensional array, wherein a first one dimensional array frequency coefficient of said one dimensional array is at position 0 and a thirty-second one dimensional array frequency coefficient of said one dimensional array is at position 31; and

said number of groups of sixteen one dimensional array frequency coefficients comprises a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array and a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array, said first group being said corresponding group of sixteen one dimensional array frequency coefficients for said left four by four block and said second group being said corresponding

group of sixteen one dimensional array frequency coefficients for said right four by four block.

97. The device of claim 96, wherein said encoder:

scans said two dimensional array frequency coefficients of said left four by four block first; and

scans said two dimensional array frequency coefficients of said right four by four block second.

98. The device of claim 88, wherein, in dividing said two dimensional array of said two dimensional array frequency coefficients into a number of four by four blocks, if said two dimensional array of said two dimensional array frequency coefficients comprises eight columns and eight rows of said two dimensional array frequency coefficients, said encoder divides:

said two dimensional array into a top-left four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the left-most four columns of said two dimensional array;

said two dimensional array into a top-right four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the right-most four columns of said two dimensional array;

said two dimensional array into a bottom-left four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the left-most four columns of said two dimensional array; and

said two dimensional array into a bottom-right four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the right-most four columns of said two dimensional array.

99. The device of claim 98, wherein:

said one dimensional array of said one dimensional array frequency coefficients comprises 64 frequency coefficients at positions 0 through 63 in said one dimensional array, wherein a first one dimensional array frequency coefficient of said one dimensional array is at

position 0 and a sixty-fourth one dimensional array frequency coefficient of said one dimensional array is at position 63; and

said number of groups of sixteen one dimensional array frequency coefficients comprises a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array, a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array, a third group comprising one dimensional array frequency coefficients at positions 32 through 47 in said one dimensional array, and a fourth group comprising one dimensional array frequency coefficients at positions 48 through 63 in said one dimensional array, said first group being said corresponding group of sixteen one dimensional array frequency coefficients for said top-left four by four block, said second group being said corresponding group of sixteen one dimensional array frequency coefficients for said top-right four by four block, said third group being said corresponding group of sixteen one dimensional array frequency coefficients for said bottom-left four by four block, said fourth group being said corresponding group of sixteen one dimensional array frequency coefficients for said bottom-right four by four block.

100. The device of claim 99, wherein said encoder:

scans said two dimensional array frequency coefficients of said top-left four by four block first;

scans said two dimensional array frequency coefficients of said top-right four by four block second;

scans said two dimensional array frequency coefficients of aid bottom-left four by four block third; and

scans said two dimensional array frequency coefficients of said bottom-right four by four block fourth.

101. The device of claim 88, wherein, in dividing said two dimensional array of said two dimensional array frequency coefficients into a number of four by four blocks, if said two dimensional array of said two dimensional array frequency coefficients comprises eight columns and sixteen rows of said two dimensional array frequency coefficients, said encoder divides:

said two dimensional array into a first four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the left-most four columns of said two dimensional array;

said two dimensional array into a second four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the right-most four columns of said two dimensional array;

said two dimensional array into a third four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows from the top of said two dimensional array and in the left-most four columns of said two dimensional array;

said two dimensional array into a fourth four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows from the top of said two dimensional array and in the right-most four columns of said two dimensional array;

said two dimensional array into a fifth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows from the top of said two dimensional array and in the left-most four columns of said two dimensional array;

said two dimensional array into a sixth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows from the top of said two dimensional array and in the right-most four columns of said two dimensional array;

said two dimensional array into a seventh four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the left-most four columns of said two dimensional array; and

said two dimensional array into an eighth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the right-most four columns of said two dimensional array.

102. The device of claim 101, wherein:

said one dimensional array of said one dimensional array frequency coefficients comprises 128 one dimensional array frequency coefficients at positions 0 through 127 in said one dimensional array, wherein a first one dimensional array frequency coefficient of said one dimensional array is at position 0 and a one hundred and twenty-eighth one dimensional array frequency coefficient of said one dimensional array is at position 127; and

said number of groups of sixteen one dimensional array frequency coefficients comprises a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array, a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array, a third group comprising one dimensional array frequency coefficients at positions 32 through 47 in said one dimensional array, a fourth group comprising one dimensional array frequency coefficients at positions 48 through 63 in said one dimensional array, a fifth group comprising one dimensional array frequency coefficients at positions 64 through 79 in said one dimensional array, a sixth group comprising one dimensional array frequency coefficients at positions 80 through 95 in said one dimensional array, a seventh group comprising one dimensional array frequency coefficients at positions 96 through 111 in said one dimensional array, and an eighth group comprising one dimensional array frequency coefficients at positions 112 through 127 in said one dimensional array, said first group being said corresponding group of sixteen one dimensional array frequency coefficients for said first four by four block, said second group being said corresponding group of sixteen one dimensional array frequency coefficients for said second four by four block, said third group being said corresponding group of sixteen one dimensional array frequency coefficients for said third four by four block, said fourth group being said corresponding group of sixteen one dimensional array frequency coefficients for said fourth four by four block, said fifth group being said corresponding group of sixteen one dimensional array frequency coefficients for said fifth four by four block, said sixth group being said corresponding group of sixteen one dimensional array frequency coefficients for said sixth four by four block, said seventh group being said corresponding group of sixteen one dimensional array frequency coefficients for

said seventh four by four block, said eighth group being said corresponding group of sixteen one dimensional array frequency coefficients for said eighth four by four block.

103. The device of claim 102, wherein said encoder:

scans said two dimensional array frequency coefficients of said first four by four block first;

scans said two dimensional array frequency coefficients of said second four by four block second;

scans said two dimensional array frequency coefficients of said third four by four block third;

scans said two dimensional array frequency coefficients of said fourth four by four block fourth;

scans said two dimensional array frequency coefficients of said fifth four by four block fifth;

scans said two dimensional array frequency coefficients of said sixth four by four block sixth;

scans said two dimensional array frequency coefficients of said seventh four by four block seventh; and

scans said two dimensional array frequency coefficients of said eighth four by four block eighth.

104. The device of claim 88, wherein, in dividing said two dimensional array of said two dimensional array frequency coefficients into a number of four by four blocks, if said two dimensional array of said two dimensional array frequency coefficients comprises sixteen columns and eight rows of said two dimensional array frequency coefficients, said encoder divides:

said two dimensional array into a first four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the left-most four columns of said two dimensional array;

said two dimensional array into a second four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the fourth through seventh columns of said two dimensional array;

said two dimensional array into a third four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the first four columns of said two dimensional array;

said two dimensional array into a fourth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the fourth through seventh columns of said two dimensional array;

said two dimensional array into a fifth four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the eighth through eleventh columns of said two dimensional array;

said two dimensional array into a sixth four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the right-most four columns of said two dimensional array;

said two dimensional array into a seventh four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the eighth through eleventh columns of said two dimensional array; and

said two dimensional array into an eighth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the right-most four columns of said two dimensional array.

105. The device of claim 104, wherein:

said one dimensional array of said one dimensional array frequency coefficients comprises 128 one dimensional array frequency coefficients at positions 0 through 127 in said one dimensional array, wherein a first one dimensional array frequency coefficient of said one dimensional array is at position 0 and a one hundred and twenty-eighth one dimensional array frequency coefficient of said one dimensional array is at position 127; and

said number of groups of sixteen one dimensional array frequency coefficients comprises a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array, a second group comprising one dimensional array

frequency coefficients at positions 16 through 31 in said one dimensional array, a third group comprising one dimensional array frequency coefficients at positions 32 through 47 in said one dimensional array, a fourth group comprising one dimensional array frequency coefficients at positions 48 through 63 in said one dimensional array, a fifth group comprising one dimensional array frequency coefficients at positions 64 through 79 in said one dimensional array, a sixth group comprising one dimensional array frequency coefficients at positions 80 through 95 in said one dimensional array, a seventh group comprising one dimensional array frequency coefficients at positions 96 through 111 in said one dimensional array, and an eighth group comprising one dimensional array frequency coefficients at positions 112 through 127 in said one dimensional array, said first group being said corresponding group of sixteen one dimensional array frequency coefficients for said first four by four block, said second group being said corresponding group of sixteen one dimensional array frequency coefficients for said second four by four block, said third group being said corresponding group of sixteen one dimensional array frequency coefficients for said third four by four block, said fourth group being said corresponding group of sixteen one dimensional array frequency coefficients for said fourth four by four block, said fifth group being said corresponding group of sixteen one dimensional array frequency coefficients for said fifth four by four block, said sixth group being said corresponding group of sixteen one dimensional array frequency coefficients for said sixth four by four block, said seventh group being said corresponding group of sixteen one dimensional array frequency coefficients for said seventh four by four block, said eighth group being said corresponding group of sixteen one dimensional array frequency coefficients for said eighth four by four block.

106. The device of claim 105, wherein said encoder:

scans said two dimensional array frequency coefficients of said first four by four block first;

scans said two dimensional array frequency coefficients of said second four by four block second;

scans said two dimensional array frequency coefficients of said third four by four block third;

scans said two dimensional array frequency coefficients of said fourth four by four block fourth;

scans said two dimensional array frequency coefficients of said fifth four by four block fifth;

scans said two dimensional array frequency coefficients of said sixth four by four block sixth;

scans said two dimensional array frequency coefficients of said seventh four by four block seventh; and

scans said two dimensional array frequency coefficients of said eighth four by four block eighth.

107. The device of claim 88, wherein, in dividing said two dimensional array of said two dimensional array frequency coefficients into a number of four by four blocks, if said two dimensional array of said two dimensional array frequency coefficients comprises sixteen columns and sixteen rows of said two dimensional array frequency coefficients, said encoder divides:

said two dimensional array into a first four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the left-most four columns of said two dimensional array;

said two dimensional array into a second four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the fourth through seventh columns of said two dimensional array;

said two dimensional array into a third four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows four rows and in the first four columns of said two dimensional array;

said two dimensional array into a fourth four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows and in the fourth through seventh columns of said two dimensional array;

said two dimensional array into a fifth four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the eighth through eleventh columns of said two dimensional array;

said two dimensional array into a sixth four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the right-most four columns of said two dimensional array;

said two dimensional array into a seventh four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows and in the eighth through eleventh columns of said two dimensional array;

said two dimensional array into an eighth four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows and in the right-most four columns of said two dimensional array;

said two dimensional array into a ninth four by four block comprising said two dimensional array frequency coefficients in the eighth through eleventh rows and in the left-most four columns of said two dimensional array;

said two dimensional array into a tenth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows and in the fourth through seventh columns of said two dimensional array;

said two dimensional array into an eleventh four by four block comprising said two dimensional array frequency coefficients in the bottom four rows and in the first four columns of said two dimensional array;

said two dimensional array into a twelfth fourth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the fourth through seventh columns of said two dimensional array;

said two dimensional array into a thirteenth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows and in the eighth through eleventh columns of said two dimensional array;

said two dimensional array into a fourteenth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows and in the right-most four columns of said two dimensional array;

said two dimensional array into a fifteenth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the eighth through eleventh columns of said two dimensional array; and

said two dimensional array into a sixteenth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the right-most four columns of said two dimensional array.

108. The device of claim 107, wherein:

said one dimensional array of said one dimensional array frequency coefficients comprises 256 one dimensional array frequency coefficients at positions 0 through 255 in said one dimensional array, wherein a first one dimensional array frequency coefficient of said one dimensional array is at position 0 and a two hundred and fifth-sixth one dimensional array frequency coefficient of said one dimensional array is at position 255; and

said number of groups of sixteen one dimensional array frequency coefficients comprises a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array, a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array, a third group comprising one dimensional array frequency coefficients at positions 32 through 47 in said one dimensional array, a fourth group comprising one dimensional array frequency coefficients at positions 48 through 63 in said one dimensional array, a fifth group comprising one dimensional array frequency coefficients at positions 64 through 79 in said one dimensional array, a sixth group comprising one dimensional array frequency coefficients at positions 80 through 95 in said one dimensional array, a seventh group comprising one dimensional array frequency coefficients at positions 96 through 111 in said one dimensional array, and an eighth group comprising one dimensional array frequency coefficients at positions 112 through 127 in said one dimensional array, a ninth group comprising one dimensional array frequency coefficients at positions 128 through 143 in said one dimensional array, a tenth group comprising one dimensional array frequency coefficients at positions 144 through 159 in said one dimensional array, an eleventh group comprising one dimensional array frequency coefficients at positions 160 through 175 in said one dimensional array, a twelfth group comprising one dimensional array frequency coefficients at positions 176 through 191 in said one dimensional array, a thirteenth group comprising one dimensional array frequency coefficients at positions 192 through 207 in said one dimensional array, a fourteenth group comprising one dimensional array frequency

coefficients at positions 208 through 223 in said one dimensional array, a fifteenth group comprising one dimensional array frequency coefficients at positions 224 through 239 in said one dimensional array, and a sixteenth group comprising one dimensional array frequency coefficients at positions 240 through 255 in said one dimensional array, said first group being said corresponding group of sixteen one dimensional array frequency coefficients for said first four by four block, said second group being said corresponding group of sixteen one dimensional array frequency coefficients for said second four by four block, said third group being said corresponding group of sixteen one dimensional array frequency coefficients for said third four by four block, said fourth group being said corresponding group of sixteen one dimensional array frequency coefficients for said fourth four by four block, said fifth group being said corresponding group of sixteen one dimensional array frequency coefficients for said fifth four by four block, said sixth group being said corresponding group of sixteen one dimensional array frequency coefficients for said sixth four by four block, said seventh group being said corresponding group of sixteen one dimensional array frequency coefficients for said seventh four by four block, said eighth group being said corresponding group of sixteen one dimensional array frequency coefficients for said eighth four by four block, said ninth group being said corresponding group of sixteen one dimensional array frequency coefficients for said ninth four by four block, said tenth group being said corresponding group of sixteen one dimensional array frequency coefficients for said tenth four by four block, said eleventh group being said corresponding group of sixteen one dimensional array frequency coefficients for said eleventh four by four block, said twelfth group being said corresponding group of sixteen one dimensional array frequency coefficients for said twelfth four by four block, said thirteenth group being said corresponding group of sixteen one dimensional array frequency coefficients for said thirteenth four by four block, said fourteenth group being said corresponding group of sixteen one dimensional array frequency coefficients for said fourteenth four by four block, said fifteenth group being said corresponding group of sixteen one dimensional array frequency coefficients for said fifteenth four by four block, said sixteenth group being said corresponding group of sixteen one dimensional array frequency coefficients for said sixteenth four by four block.

109. The device of claim 108, wherein said encoder:

scans said two dimensional array frequency coefficients of said first four by four block first;

scans said two dimensional array frequency coefficients of said second four by four block second;

scans said two dimensional array frequency coefficients of said third four by four block third;

scans said two dimensional array frequency coefficients of said fourth four by four block fourth;

scans said two dimensional array frequency coefficients of said fifth four by four block fifth;

scans said two dimensional array frequency coefficients of said sixth four by four block sixth;

scans said two dimensional array frequency coefficients of said seventh four by four block seventh;

scans said two dimensional array frequency coefficients of said eighth four by four block eighth;

scans said two dimensional array frequency coefficients of said ninth four by four block ninth;

scans said two dimensional array frequency coefficients of said tenth four by four block tenth;

scans said two dimensional array frequency coefficients of said eleventh four by four block eleventh;

scans said two dimensional array frequency coefficients of said twelfth four by four block twelfth;

scans said two dimensional array frequency coefficients of said thirteenth four by four block thirteenth;

scans said two dimensional array frequency coefficients of said fourteenth four by four block fourteenth;

scans said two dimensional array frequency coefficients of said fifteenth four by four block fifteenth; and

scans said two dimensional array frequency coefficients of said sixteenth four by four block sixteenth.

110. The device of claim 86, wherein, in scanning said two dimensional array frequency coefficients in each of said number of four by four blocks, if said block of pixels is to be encoded in field mode, said encoder:

assigns a scanning order = 0 to a two dimensional array frequency coefficient located at n=0 and m=0;

assigns a scanning order = 1 to a two dimensional array frequency coefficient located at n=0 and m=1;

assigns a scanning order = 2 to a two dimensional array frequency coefficient located at n=1 and m=0;

assigns a scanning order = 3 to a two dimensional array frequency coefficient located at n=0 and m=2;

assigns a scanning order = 4 to a two dimensional array frequency coefficient located at n=0 and m=3;

assigns a scanning order = 5 to a two dimensional array frequency coefficient located at n=1 and m=1;

assigns a scanning order = 6 to a two dimensional array frequency coefficient located at n=1 and m=2;

assigns a scanning order = 7 to a two dimensional array frequency coefficient located at n=1 and m=3;

assigns a scanning order = 8 to a two dimensional array frequency coefficient located at n=2 and m=0;

assigns a scanning order = 9 to a two dimensional array frequency coefficient located at n=2 and m=1;

assigns a scanning order = 10 to a two dimensional array frequency coefficient located at n=2 and m=2;

assigns a scanning order = 11 to a two dimensional array frequency coefficient located at n=2 and m=3;

assigns a scanning order = 12 to a two dimensional array frequency coefficient located at n=3 and m=0;

assigns a scanning order = 13 to a two dimensional array frequency coefficient located at n=3 and m=1;

assigns a scanning order = 14 to a two dimensional array frequency coefficient located at n=3 and m=2; and

assigns a scanning order = 15 to a two dimensional array frequency coefficient located at n=3 and m=3.

111. The device of claim 110, wherein in scanning said two dimensional array frequency coefficients in each of said number of four by four blocks, said encoder further:

assigns a one dimensional array frequency coefficient located at p=0 in a corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=0 and m=0.

assigns a one dimensional array frequency coefficient located at p=1 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=0 and m=1;

assigns a one dimensional array frequency coefficient located at p=2 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=1 and m=0;

assigns a one dimensional array frequency coefficient located at p=3 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=0 and m=2;

assigns a one dimensional array frequency coefficient located at p=4 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=0 and m=3;

assigns a one dimensional array frequency coefficient located at p=5 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=1 and m=1;

assigns a one dimensional array frequency coefficient located at p=6 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=1 and m=2;

assigns a one dimensional array frequency coefficient located at p=7 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=1 and m=3;

assigns a one dimensional array frequency coefficient located at p=8 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=2 and m=0;

assigns a one dimensional array frequency coefficient located at p=9 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=2 and m=1;

assigns a one dimensional array frequency coefficient located at p=10 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=2 and m=2;

assigns a one dimensional array frequency coefficient located at p=11 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=2 and m=3;

assigns a one dimensional array frequency coefficient located at p=12 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=3 and m=0;

assigns a one dimensional array frequency coefficient located at p=13 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=3 and m=1;

assigns a one dimensional array frequency coefficient located at p=14 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=3 and m=2; and

assigns a one dimensional array frequency coefficient located at p=15 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=3 and m=3.

112. The device of claim 111, wherein, in dividing said two dimensional array of said two dimensional array frequency coefficients into a number of four by four blocks, if said two dimensional array of said two dimensional array frequency coefficients comprises four columns and four rows of said two dimensional array frequency coefficients, said encoder:

divides said two dimensional array into a single four by four block comprising all of said two dimensional array frequency coefficients in said two dimensional array.

113. The device of claim 112, wherein:

said one dimensional array of said one dimensional array frequency coefficients comprises 16 one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array, wherein a first one dimensional array frequency coefficient of said one dimensional array is at position 0 and a sixteenth one dimensional array frequency coefficient of said one dimensional array is at position 15; and

said number of groups of sixteen one dimensional array frequency coefficients comprises a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array, said first group being said corresponding group of sixteen one dimensional array frequency coefficients for said single four by four block.

114. The device of claim 113, wherein said encoder:

scans said two dimensional array frequency coefficients of said single four by four block.

115. The device of claim 111, wherein, in dividing said two dimensional array of said two dimensional array frequency coefficients into a number of four by four blocks, if said two dimensional array of said two dimensional array frequency coefficients comprises four columns and eight rows of said two dimensional array frequency coefficients, said encoder:

divides said two dimensional array into a top four by four block comprising the top four rows of said two dimensional array frequency coefficients in said two dimensional array and a bottom four by four block comprising the bottom four rows of said two dimensional array frequency coefficients in said two dimensional array.

116. The device of claim 115, wherein:

said one dimensional array of said one dimensional array frequency coefficients comprises 32 one dimensional array frequency coefficients at positions 0 through 31 in said one dimensional array, wherein a first one dimensional array frequency coefficient of said one dimensional array is at position 0 and a thirty-second one dimensional array frequency coefficient of said one dimensional array is at position 31; and

said number of groups of sixteen one dimensional array frequency coefficients comprises a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array and a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array, said first group being said corresponding group of sixteen one dimensional array frequency coefficients for said top four by four block and said second group being said corresponding group of sixteen one dimensional array frequency coefficients for said bottom four by four block.

117. The device of claim 116, wherein said encoder:

scans said two dimensional array frequency coefficients of said top four by four block first; and

scans said two dimensional array frequency coefficients of said bottom four by four block second.

118. The device of claim 111, wherein, in dividing said two dimensional array of said two dimensional array frequency coefficients into a number of four by four blocks, if said two dimensional array of said two dimensional array frequency coefficients comprises eight columns and four rows of said two dimensional array frequency coefficients, said encoder:

divides said two dimensional array into a left four by four block comprising the left-most four columns of said two dimensional array frequency coefficients in said two dimensional array and a right four by four block comprising the right-most four columns of said two dimensional array frequency coefficients in said two dimensional array.

119. The device of claim 118, wherein:

said one dimensional array of said one dimensional array frequency coefficients comprises 32 one dimensional array frequency coefficients at positions 0 through 31 in said one dimensional array, wherein a first one dimensional array frequency coefficient of said one dimensional array is at position 0 and a thirty-second one dimensional array frequency coefficient of said one dimensional array is at position 31; and

said number of groups of sixteen one dimensional array frequency coefficients comprises a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array and a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array, said first group being said corresponding group of sixteen one dimensional array frequency coefficients for said left four by four block and said second group being said corresponding group of sixteen one dimensional array frequency coefficients for said right four by four block.

120. The device of claim 119, wherein said encoder:

scans said two dimensional array frequency coefficients of said left four by four block first; and

scans said two dimensional array frequency coefficients of said right four by four block second.

121. The device of claim 111, wherein, in dividing said two dimensional array of said two dimensional array frequency coefficients into a number of four by four blocks, if said two dimensional array of said two dimensional array frequency coefficients comprises eight columns and eight rows of said two dimensional array frequency coefficients, said encoder divides:

said two dimensional array into a top-left four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the left-most four columns of said two dimensional array;

said two dimensional array into a top-right four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the right-most four columns of said two dimensional array;

said two dimensional array into a bottom-left four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the left-most four columns of said two dimensional array; and

said two dimensional array into a bottom-right four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the right-most four columns of said two dimensional array.

122. The device of claim 121, wherein:

said one dimensional array of said one dimensional array frequency coefficients comprises 64 frequency coefficients at positions 0 through 63 in said one dimensional array, wherein a first one dimensional array frequency coefficient of said one dimensional array is at position 0 and a sixty-fourth one dimensional array frequency coefficient of said one dimensional array is at position 63; and

said number of groups of sixteen one dimensional array frequency coefficients comprises a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array, a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array, a third group comprising one dimensional array frequency coefficients at positions 32 through 47 in said one dimensional array, and a fourth group comprising one dimensional array frequency coefficients at positions 48 through 63 in said one dimensional array, said first group being said corresponding group of sixteen one dimensional array frequency coefficients for said top-left four by four block, said second group being said corresponding group of sixteen one dimensional array frequency coefficients for said top-right four by four block, said third group being said corresponding group of sixteen one dimensional array frequency coefficients for said bottom-left four by four block, said fourth group being said corresponding group of sixteen one dimensional array frequency coefficients for said bottom-right four by four block.

123. The device of claim 122, wherein said encoder:

scans said two dimensional array frequency coefficients of said top-left four by four block first;

scans said two dimensional array frequency coefficients of said top-right four by four block second;

scans said two dimensional array frequency coefficients of aid bottom-left four by four block third; and

scans said two dimensional array frequency coefficients of said bottom-right four by four block fourth.

124. The device of claim 111, wherein, in dividing said two dimensional array of said two dimensional array frequency coefficients into a number of four by four blocks, if said two dimensional array of said two dimensional array frequency coefficients comprises eight columns and sixteen rows of said two dimensional array frequency coefficients, said encoder divides:

said two dimensional array into a first four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the left-most four columns of said two dimensional array;

said two dimensional array into a second four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the right-most four columns of said two dimensional array;

said two dimensional array into a third four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows from the top of said two dimensional array and in the left-most four columns of said two dimensional array;

said two dimensional array into a fourth four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows from the top of said two dimensional array and in the right-most four columns of said two dimensional array;

said two dimensional array into a fifth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows from the

top of said two dimensional array and in the left-most four columns of said two dimensional array;

said two dimensional array into a sixth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows from the top of said two dimensional array and in the right-most four columns of said two dimensional array;

said two dimensional array into a seventh four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the left-most four columns of said two dimensional array; and

said two dimensional array into an eighth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the right-most four columns of said two dimensional array.

125. The device of claim 124, wherein:

said one dimensional array of said one dimensional array frequency coefficients comprises 128 one dimensional array frequency coefficients at positions 0 through 127 in said one dimensional array, wherein a first one dimensional array frequency coefficient of said one dimensional array is at position 0 and a one hundred and twenty-eighth one dimensional array frequency coefficient of said one dimensional array is at position 127; and

said number of groups of sixteen one dimensional array frequency coefficients comprises a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array, a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array, a third group comprising one dimensional array frequency coefficients at positions 32 through 47 in said one dimensional array, a fourth group comprising one dimensional array frequency coefficients at positions 48 through 63 in said one dimensional array, a fifth group comprising one dimensional array frequency coefficients at positions 64 through 79 in said one dimensional array, a sixth group comprising one dimensional array frequency coefficients at positions 80 through 95 in said one dimensional array, a seventh group comprising one dimensional array frequency coefficients at positions 96 through 111 in said one dimensional array, and an eighth group comprising one dimensional array frequency coefficients at

positions 112 through 127 in said one dimensional array, said first group being said corresponding group of sixteen one dimensional array frequency coefficients for said first four by four block, said second group being said corresponding group of sixteen one dimensional array frequency coefficients for said second four by four block, said third group being said corresponding group of sixteen one dimensional array frequency coefficients for said third four by four block, said fourth group being said corresponding group of sixteen one dimensional array frequency coefficients for said fourth four by four block, said fifth group being said corresponding group of sixteen one dimensional array frequency coefficients for said fifth four by four block, said sixth group being said corresponding group of sixteen one dimensional array frequency coefficients for said sixth four by four block, said seventh group being said corresponding group of sixteen one dimensional array frequency coefficients for said seventh four by four block, said eighth group being said corresponding group of sixteen one dimensional array frequency coefficients for said eighth four by four block.

126. The device of claim 125, wherein said encoder:

scans said two dimensional array frequency coefficients of said first four by four block first;

scans said two dimensional array frequency coefficients of said second four by four block second;

scans said two dimensional array frequency coefficients of said third four by four block third;

scans said two dimensional array frequency coefficients of said fourth four by four block fourth;

scans said two dimensional array frequency coefficients of said fifth four by four block fifth;

scans said two dimensional array frequency coefficients of said sixth four by four block sixth;

scans said two dimensional array frequency coefficients of said seventh four by four block seventh; and

scans said two dimensional array frequency coefficients of said eighth four by four block eighth.

127. The device of claim 111, wherein, in dividing said two dimensional array of said two dimensional array frequency coefficients into a number of four by four blocks, if said two dimensional array of said two dimensional array frequency coefficients comprises sixteen columns and eight rows of said two dimensional array frequency coefficients, said encoder divides:

said two dimensional array into a first four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the left-most four columns of said two dimensional array;

said two dimensional array into a second four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the fourth through seventh columns of said two dimensional array;

said two dimensional array into a third four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the first four columns of said two dimensional array;

said two dimensional array into a fourth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the fourth through seventh columns of said two dimensional array;

said two dimensional array into a fifth four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the eighth through eleventh columns of said two dimensional array;

said two dimensional array into a sixth four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the right-most four columns of said two dimensional array;

said two dimensional array into a seventh four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the eighth through eleventh columns of said two dimensional array; and

said two dimensional array into an eighth four by four block comprising said two

dimensional array frequency coefficients in both the bottom four rows and in the right-most four columns of said two dimensional array.

128. The device of claim 127, wherein:

said one dimensional array of said one dimensional array frequency coefficients comprises 128 one dimensional array frequency coefficients at positions 0 through 127 in said one dimensional array, wherein a first one dimensional array frequency coefficient of said one dimensional array is at position 0 and a one hundred and twenty-eighth one dimensional array frequency coefficient of said one dimensional array is at position 127; and

said number of groups of sixteen one dimensional array frequency coefficients comprises a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array, a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array, a third group comprising one dimensional array frequency coefficients at positions 32 through 47 in said one dimensional array, a fourth group comprising one dimensional array frequency coefficients at positions 48 through 63 in said one dimensional array, a fifth group comprising one dimensional array frequency coefficients at positions 64 through 79 in said one dimensional array, a sixth group comprising one dimensional array frequency coefficients at positions 80 through 95 in said one dimensional array, a seventh group comprising one dimensional array frequency coefficients at positions 96 through 111 in said one dimensional array, and an eighth group comprising one dimensional array frequency coefficients at positions 112 through 127 in said one dimensional array, said first group being said corresponding group of sixteen one dimensional array frequency coefficients for said first four by four block, said second group being said corresponding group of sixteen one dimensional array frequency coefficients for said second four by four block, said third group being said corresponding group of sixteen one dimensional array frequency coefficients for said third four by four block, said fourth group being said corresponding group of sixteen one dimensional array frequency coefficients for said fourth four by four block, said fifth group being said corresponding group of sixteen one dimensional array frequency coefficients for said fifth four by four block, said sixth group being said corresponding group of sixteen one dimensional array frequency coefficients for said sixth four by four block, said seventh group

being said corresponding group of sixteen one dimensional array frequency coefficients for said seventh four by four block, said eighth group being said corresponding group of sixteen one dimensional array frequency coefficients for said eighth four by four block.

129. The device of claim 128, wherein said encoder:

scans said two dimensional array frequency coefficients of said first four by four block first;

scans said two dimensional array frequency coefficients of said second four by four block second;

scans said two dimensional array frequency coefficients of said third four by four block third;

scans said two dimensional array frequency coefficients of said fourth four by four block fourth;

scans said two dimensional array frequency coefficients of said fifth four by four block fifth;

scans said two dimensional array frequency coefficients of said sixth four by four block sixth;

scans said two dimensional array frequency coefficients of said seventh four by four block seventh; and

scans said two dimensional array frequency coefficients of said eighth four by four block eighth.

130. The device of claim 111, wherein, in dividing said two dimensional array of said two dimensional array frequency coefficients into a number of four by four blocks, if said two dimensional array of said two dimensional array frequency coefficients comprises sixteen columns and sixteen rows of said two dimensional array frequency coefficients, said encoder divides:

said two dimensional array into a first four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the left-most four columns of said two dimensional array;

said two dimensional array into a second four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the fourth through seventh columns of said two dimensional array;

said two dimensional array into a third four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows four rows and in the first four columns of said two dimensional array;

said two dimensional array into a fourth four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows and in the fourth through seventh columns of said two dimensional array;

said two dimensional array into a fifth four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the eighth through eleventh columns of said two dimensional array;

said two dimensional array into a sixth four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the right-most four columns of said two dimensional array;

said two dimensional array into a seventh four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows and in the eighth through eleventh columns of said two dimensional array;

said two dimensional array into an eighth four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows and in the right-most four columns of said two dimensional array;

said two dimensional array into a ninth four by four block comprising said two dimensional array frequency coefficients in the eighth through eleventh rows and in the left-most four columns of said two dimensional array;

said two dimensional array into a tenth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows and in the fourth through seventh columns of said two dimensional array;

said two dimensional array into an eleventh four by four block comprising said two dimensional array frequency coefficients in the bottom four rows and in the first four columns of said two dimensional array;

said two dimensional array into a twelfth fourth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the fourth through seventh columns of said two dimensional array;

said two dimensional array into a thirteenth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows and in the eighth through eleventh columns of said two dimensional array;

said two dimensional array into a fourteenth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows and in the right-most four columns of said two dimensional array;

said two dimensional array into a fifteenth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the eighth through eleventh columns of said two dimensional array; and

said two dimensional array into a sixteenth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the right-most four columns of said two dimensional array.

131. The device of claim 130, wherein:

said one dimensional array of said one dimensional array frequency coefficients comprises 256 one dimensional array frequency coefficients at positions 0 through 255 in said one dimensional array, wherein a first one dimensional array frequency coefficient of said one dimensional array is at position 0 and a two hundred and fifth-sixth one dimensional array frequency coefficient of said one dimensional array is at position 255; and

said number of groups of sixteen one dimensional array frequency coefficients comprises a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array, a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array, a third group comprising one dimensional array frequency coefficients at positions 32 through 47 in said one dimensional array, a fourth group comprising one dimensional array frequency coefficients at positions 48 through 63 in said one dimensional array, a fifth group comprising one dimensional array frequency coefficients at positions 64 through 79 in said one dimensional array, a sixth group comprising one dimensional array frequency coefficients at

positions 80 through 95 in said one dimensional array, a seventh group comprising one dimensional array frequency coefficients at positions 96 through 111 in said one dimensional array, and an eighth group comprising one dimensional array frequency coefficients at positions 112 through 127 in said one dimensional array, a ninth group comprising one dimensional array frequency coefficients at positions 128 through 143 in said one dimensional array, a tenth group comprising one dimensional array frequency coefficients at positions 144 through 159 in said one dimensional array, an eleventh group comprising one dimensional array frequency coefficients at positions 160 through 175 in said one dimensional array, a twelfth group comprising one dimensional array frequency coefficients at positions 176 through 191 in said one dimensional array, a thirteenth group comprising one dimensional array frequency coefficients at positions 192 through 207 in said one dimensional array, a fourteenth group comprising one dimensional array frequency coefficients at positions 208 through 223 in said one dimensional array, a fifteenth group comprising one dimensional array frequency coefficients at positions 224 through 239 in said one dimensional array, and a sixteenth group comprising one dimensional array frequency coefficients at positions 240 through 255 in said one dimensional array, said first group being said corresponding group of sixteen one dimensional array frequency coefficients for said first four by four block, said second group being said corresponding group of sixteen one dimensional array frequency coefficients for said second four by four block, said third group being said corresponding group of sixteen one dimensional array frequency coefficients for said third four by four block, said fourth group being said corresponding group of sixteen one dimensional array frequency coefficients for said fourth four by four block, said fifth group being said corresponding group of sixteen one dimensional array frequency coefficients for said fifth four by four block, said sixth group being said corresponding group of sixteen one dimensional array frequency coefficients for said sixth four by four block, said seventh group being said corresponding group of sixteen one dimensional array frequency coefficients for said seventh four by four block, said eighth group being said corresponding group of sixteen one dimensional array frequency coefficients for said eighth four by four block, said ninth group being said corresponding group of sixteen one dimensional array frequency coefficients for said ninth four by four block, said tenth group being said corresponding group of sixteen one dimensional array frequency coefficients for said tenth four by four block, said eleventh

group being said corresponding group of sixteen one dimensional array frequency coefficients for said eleventh four by four block, said twelfth group being said corresponding group of sixteen one dimensional array frequency coefficients for said twelfth four by four block, said thirteenth group being said corresponding group of sixteen one dimensional array frequency coefficients for said thirteenth four by four block, said fourteenth group being said corresponding group of sixteen one dimensional array frequency coefficients for said fourteenth four by four block, said fifteenth group being said corresponding group of sixteen one dimensional array frequency coefficients for said fifteenth four by four block, said sixteenth group being said corresponding group of sixteen one dimensional array frequency coefficients for said sixteenth four by four block.

132. The device of claim 131, wherein said encoder:

scans said two dimensional array frequency coefficients of said first four by four block first;

scans said two dimensional array frequency coefficients of said second four by four block second;

scans said two dimensional array frequency coefficients of said third four by four block third;

scans said two dimensional array frequency coefficients of said fourth four by four block fourth;

scans said two dimensional array frequency coefficients of said fifth four by four block fifth;

scans said two dimensional array frequency coefficients of said sixth four by four block sixth;

scans said two dimensional array frequency coefficients of said seventh four by four block seventh;

scans said two dimensional array frequency coefficients of said eighth four by four block eighth;

scans said two dimensional array frequency coefficients of said ninth four by four block ninth;

scans said two dimensional array frequency coefficients of said tenth four by four block tenth;

scans said two dimensional array frequency coefficients of said eleventh four by four block eleventh;

scans said two dimensional array frequency coefficients of said twelfth four by four block twelfth;

scans said two dimensional array frequency coefficients of said thirteenth four by four block thirteenth;

scans said two dimensional array frequency coefficients of said fourteenth four by four block fourteenth;

scans said two dimensional array frequency coefficients of said fifteenth four by four block fifteenth; and

scans said two dimensional array frequency coefficients of said sixteenth four by four block sixteenth.

133. A device comprising a decoder for transform-based decoding of digital video content, said digital video content comprising a stream of pictures, slices, or macroblocks in the form of blocks of pixels, said blocks of pixels forming a one dimensional array of one dimensional array frequency coefficients, wherein said decoder:

divides said one dimensional array frequency coefficients into a number of groups of sixteen one dimensional array frequency coefficients, wherein said sixteen one dimensional array frequency coefficients in each of said number of groups are represented with a variable p=0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, in a numerical sequential order, wherein a first one dimensional array frequency coefficient in said each of said group is represented by p=0 and a sixteenth one dimensional array frequency coefficient in said each of said group is represented by p=15;

scans each of said number of groups of sixteen one dimensional array frequency coefficients in said numerical sequential order, said scanning starting at p=0 and ending at p=15; and

produces a two dimensional array of two dimensional array frequency coefficients.

134. The device of claim 133, wherein said two dimensional array comprises a number of four by four blocks of two dimensional array frequency coefficients, said number of four by four blocks corresponding to said number of said number of groups of one dimensional array frequency coefficients, said number of four by four blocks each comprising 4 columns and 4 rows of said two dimensional array frequency coefficients.

135. The device of claim 134, wherein said decoder:

represents said columns of said number of four by four blocks with a variable n=0, 1, 2, or 3, wherein n=0 is at least one of a first or leftmost column, n=1 is a second column, n=2 is a third column, and n=3 is at least one of a fourth or rightmost column; and

represents said rows of said number of four by four blocks with a variable m=0, 1, 2, or 3, wherein m=0 is at least one of a first or top row, m=1 is a second row, m=2 is a third row, and m=3 is at least one of a fourth or bottom row.

136. The device of claim 135, wherein, in scanning said one dimensional array frequency coefficients in each of said number of groups of sixteen one dimensional array frequency coefficients, if said block of pixels is decoded in frame mode, said decoder:

assigns a two dimensional array frequency coefficient located at n=0 and m=0 in a corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=0;

assigns a two dimensional array frequency coefficient located at n=1 and m=0 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=1;

assigns a two dimensional array frequency coefficient located at n=0 and m=1 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=2;

assigns a two dimensional array frequency coefficient located at n=0 and m=2 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=3;

assigns a two dimensional array frequency coefficient located at n=1 and m=1 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=4;

assigns a two dimensional array frequency coefficient located at n=2 and m=0 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=5;

assigns a two dimensional array frequency coefficient located at n=3 and m=0 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=6;

assigns a two dimensional array frequency coefficient located at n=2 and m=1 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=7;

assigns a two dimensional array frequency coefficient located at n=1 and m=2 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=8;

assigns a two dimensional array frequency coefficient located at n=0 and m=3 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=9;

assigns a two dimensional array frequency coefficient located at n=1 and m=3 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=10;

assigns a two dimensional array frequency coefficient located at n=2 and m=2 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=11;

assigns a two dimensional array frequency coefficient located at n=3 and m=1 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=12;

assigns a two dimensional array frequency coefficient located at n=3 and m=2 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=13;

assigns a two dimensional array frequency coefficient located at n=2 and m=3 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=14; and

assigns a two dimensional array frequency coefficient located at n=3 and m=3 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=15.

137. The device of claim 136, wherein if said one dimensional array of one dimensional array frequency coefficients comprises 16 one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array, said two dimensional array of said two dimensional array frequency coefficients comprises four columns and four rows of said two dimensional array frequency coefficients and said number of groups of sixteen one dimensional array frequency coefficients comprises:

a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array.

138. The device of claim 137, wherein:

said first group's said corresponding four by four block of said two dimensional array frequency coefficients is a single four by four block comprising said all of said two dimensional array frequency coefficients in said two dimensional array.

139. The device of claim 136, wherein if said one dimensional array of said one dimensional array frequency coefficients comprises 32 one dimensional array frequency coefficients at positions 0 through 31 in said one dimensional array, said two dimensional array of said two dimensional array frequency coefficients comprises four columns and eight rows of said two dimensional array frequency coefficients and said number of groups of sixteen one dimensional array frequency coefficients comprises:

a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array; and

a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array.

140. The device of claim 139, wherein:

said first group's said corresponding four by four block of said two dimensional array frequency coefficients is a top four by four block comprising the top four rows of said two dimensional array frequency coefficients in said two dimensional array; and

said second group's said corresponding four by four block of said two dimensional array frequency coefficients is a bottom four by four block comprising the bottom four rows of said two dimensional array frequency coefficients in said two dimensional array.

141. The device of claim 136, wherein if said one dimensional array of said one dimensional array frequency coefficients comprises 32 one dimensional array frequency coefficients at positions 0 through 31 in said one dimensional array, said two dimensional array of said two dimensional array frequency coefficients comprises eight columns and four rows of said two dimensional array frequency coefficients and said number of groups of sixteen one dimensional array frequency coefficients comprises:

a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array; and

a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array.

142. The device of claim 141, wherein:

said first group's said corresponding four by four block of said two dimensional array frequency coefficients is a left four by four block comprising the left-most four columns of said two dimensional array frequency coefficients in said two dimensional array; and

said second group's said corresponding four by four block of said two dimensional array frequency coefficients is a right four by four block comprising the right-most four columns of said two dimensional array frequency coefficients in said two dimensional array.

143. The device of claim 136, wherein if said one dimensional array of said one dimensional array frequency coefficients comprises 64 one dimensional array frequency coefficients at positions 0 through 63 in said one dimensional array, said two dimensional array of said two dimensional array frequency coefficients comprises eight columns and eight rows of said two dimensional array frequency coefficients and said number of groups of sixteen one dimensional array frequency coefficients comprises:

a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array;

a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array;

a third group comprising one dimensional array frequency coefficients at positions 32 through 47 in said one dimensional array; and

a fourth group comprising one dimensional array frequency coefficients at positions 48 through 63 in said one dimensional array.

144. The device of claim 143, wherein:

said first group's said corresponding four by four block of said two dimensional array frequency coefficients is a top-left four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the left-most four columns of said two dimensional array;

said second group's said corresponding four by four block of said two dimensional array frequency coefficients is a top-right four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the right-most four columns of said two dimensional array;

said third group's said corresponding four by four block of said two dimensional array frequency coefficients is a bottom-left four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the left-most four columns of said two dimensional array; and

said fourth group's said corresponding four by four block of said two dimensional array frequency coefficients is said bottom-right four by four block comprising said two

dimensional array frequency coefficients in both the bottom four rows and in the right-most four columns of said two dimensional array.

145. The device of claim 136, wherein if said one dimensional array of said one dimensional array frequency coefficients comprises 128 one dimensional array frequency coefficients at positions 0 through 127 in said one dimensional array, said two dimensional array of said two dimensional array frequency coefficients comprises eight columns and sixteen rows of said two dimensional array frequency coefficients and said number of groups of sixteen one dimensional array frequency coefficients comprises:

a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array;

a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array;

a third group comprising one dimensional array frequency coefficients at positions 32 through 47 in said one dimensional array;

a fourth group comprising one dimensional array frequency coefficients at positions 48 through 63 in said one dimensional array;

a fifth group comprising one dimensional array frequency coefficients at positions 64 through 79 in said one dimensional array;

a sixth group comprising one dimensional array frequency coefficients at positions 80 through 95 in said one dimensional array;

a seventh group comprising one dimensional array frequency coefficients at positions 96 through 111 in said one dimensional array; and

an eighth group comprising one dimensional array frequency coefficients at positions 112 through 127 in said one dimensional array.

146. The device of claim 145, wherein:

said first group's said corresponding four by four block of said two dimensional array frequency coefficients is a first four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the left-most four columns of said two dimensional array;

said second group's said corresponding four by four block of said two dimensional array frequency coefficients is a second four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the right-most four columns of said two dimensional array;

said third group's said corresponding four by four block of said two dimensional array frequency coefficients is a third four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh from the top of said two dimensional array and in the left-most four columns of said two dimensional array;

said fourth group's said corresponding four by four block of said two dimensional array frequency coefficients is a fourth four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows from the top of said two dimensional array and in the right-most four columns of said two dimensional array;

said fifth group's said corresponding four by four block of said two dimensional array frequency coefficients is a fifth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows from the top of said two dimensional array and in the left-most four columns of said two dimensional array;

said sixth group's said corresponding four by four block of said two dimensional array frequency coefficients is a sixth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows from the top of said two dimensional array and in the right-most four columns of said two dimensional array;

said seventh group's said corresponding four by four block of said two dimensional array frequency coefficients is a seventh four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the left-most four columns of said two dimensional array; and

said eighth group's said corresponding four by four block of said two dimensional array frequency coefficients is an eighth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the right-most four columns of said two dimensional array.

147. The device of claim 136, wherein if said one dimensional array of said one dimensional array frequency coefficients comprises 128 one dimensional array frequency

coefficients at positions 0 through 127 in said one dimensional array, said two dimensional array of said two dimensional array frequency coefficients comprises eight columns and sixteen rows of said two dimensional array frequency coefficients and said number of groups of sixteen one dimensional array frequency coefficients comprises:

a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array;

a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array;

a third group comprising one dimensional array frequency coefficients at positions 32 through 47 in said one dimensional array;

a fourth group comprising one dimensional array frequency coefficients at positions 48 through 63 in said one dimensional array;

a fifth group comprising one dimensional array frequency coefficients at positions 64 through 79 in said one dimensional array;

a sixth group comprising one dimensional array frequency coefficients at positions 80 through 95 in said one dimensional array;

a seventh group comprising one dimensional array frequency coefficients at positions 96 through 111 in said one dimensional array; and

an eighth group comprising one dimensional array frequency coefficients at positions 112 through 127 in said one dimensional array.

148. The device of claim 147, wherein:

said first group's said corresponding four by four block of said two dimensional array frequency coefficients is a first four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the left-most four columns of said two dimensional array;

said second group's said corresponding four by four block of said two dimensional array frequency coefficients is a second four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the fourth through seventh columns of said two dimensional array;

said third group's said corresponding four by four block of said two dimensional array frequency coefficients is a third four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the first four columns of said two dimensional array;

said fourth group's said corresponding four by four block of said two dimensional array frequency coefficients is a fourth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the fourth through seventh columns of said two dimensional array;

said fifth group's said corresponding four by four block of said two dimensional array frequency coefficients is a fifth four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the eighth through eleventh columns of said two dimensional array;

said sixth group's said corresponding four by four block of said two dimensional array frequency coefficients is a sixth four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the right-most four columns of said two dimensional array;

said seventh group's said corresponding four by four block of said two dimensional array frequency coefficients is a seventh four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the eighth through eleventh columns of said two dimensional array; and

said eighth group's said corresponding four by four block of said two dimensional array frequency coefficients is an eighth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the right-most four columns of said two dimensional array.

149. The device of claim 136, wherein if said one dimensional array of said one dimensional array frequency coefficients comprises 256 one dimensional array frequency coefficients at positions 0 through 255 in said one dimensional array, said two dimensional array of said two dimensional array frequency coefficients comprises sixteen columns and sixteen rows of said two dimensional array frequency coefficients and said number of groups of sixteen one dimensional array frequency coefficients comprises:

a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array;

a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array;

a third group comprising one dimensional array frequency coefficients at positions 32 through 47 in said one dimensional array;

a fourth group comprising one dimensional array frequency coefficients at positions 48 through 63 in said one dimensional array;

a fifth group comprising one dimensional array frequency coefficients at positions 64 through 79 in said one dimensional array;

a sixth group comprising one dimensional array frequency coefficients at positions 80 through 95 in said one dimensional array;

a seventh group comprising one dimensional array frequency coefficients at positions 96 through 111 in said one dimensional array;

an eighth group comprising one dimensional array frequency coefficients at positions 112 through 127 in said one dimensional array;

a ninth group comprising one dimensional array frequency coefficients at positions 128 through 143 in said one dimensional array;

a tenth group comprising one dimensional array frequency coefficients at positions 144 through 159 in said one dimensional array;

an eleventh group comprising one dimensional array frequency coefficients at positions 160 through 175 in said one dimensional array;

a twelfth group comprising one dimensional array frequency coefficients at positions 176 through 191 in said one dimensional array;

a thirteenth group comprising one dimensional array frequency coefficients at positions 192 through 207 in said one dimensional array;

a fourteenth group comprising one dimensional array frequency coefficients at positions 208 through 223 in said one dimensional array;

a fifteenth group comprising one dimensional array frequency coefficients at positions 224 through 239 in said one dimensional array; and

a sixteenth group comprising one dimensional array frequency coefficients at positions 240 through 255 in said one dimensional array.

150. The device of claim 149, wherein:

said first group's said corresponding four by four block of said two dimensional array frequency coefficients is a first four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the left-most four columns of said two dimensional array;

said second group's said corresponding four by four block of said two dimensional array frequency coefficients is a second four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the fourth through seventh columns of said two dimensional array;

said third group's said corresponding four by four block of said two dimensional array frequency coefficients is a third four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows four rows and in the first four columns of said two dimensional array;

said fourth group's said corresponding four by four block of said two dimensional array frequency coefficients is a fourth four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows and in the fourth through seventh columns of said two dimensional array;

said fifth group's said corresponding four by four block of said two dimensional array frequency coefficients is a fifth four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the eighth through eleventh columns of said two dimensional array;

said sixth group's said corresponding four by four block of said two dimensional array frequency coefficients is a sixth four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the right-most four columns of said two dimensional array;

said seventh group's said corresponding four by four block of said two dimensional array frequency coefficients is a seventh four by four block comprising said two dimensional

array frequency coefficients in both the fourth through seventh rows and in the eighth through eleventh columns of said two dimensional array;

said eighth group's said corresponding four by four block of said two dimensional array frequency coefficients is an eighth four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows and in the right-most four columns of said two dimensional array;

said ninth group's said corresponding four by four block of said two dimensional array frequency coefficients is a ninth four by four block comprising said two dimensional array frequency coefficients in the eighth through eleventh rows and in the left-most four columns of said two dimensional array;

said tenth group's said corresponding four by four block of said two dimensional array frequency coefficients is a tenth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows and in the fourth through seventh columns of said two dimensional array;

said eleventh group's said corresponding four by four block of said two dimensional array frequency coefficients is an eleventh four by four block comprising said two dimensional array frequency coefficients in the bottom four rows and in the first four columns of said two dimensional array;

said twelfth group's said corresponding four by four block of said two dimensional array frequency coefficients is a twelfth fourth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the fourth through seventh columns of said two dimensional array;

said thirteenth group's said corresponding four by four block of said two dimensional array frequency coefficients is a thirteenth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows and in the eighth through eleventh columns of said two dimensional array;

said fourteenth group's said corresponding four by four block of said two dimensional array frequency coefficients is a fourteenth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows and in the right-most four columns of said two dimensional array;

said fifteenth group's said corresponding four by four block of said two dimensional array frequency coefficients is a fifteenth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the eighth through eleventh columns of said two dimensional array;

said sixteenth group's said corresponding four by four block of said two dimensional array frequency coefficients is a sixteenth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the right-most four columns of said two dimensional array.

151. The device of claim 135, wherein, in scanning said one dimensional array frequency coefficients in each of said number of groups of sixteen one dimensional array frequency coefficients, if said block of pixels is decoded in field mode, said decoder:

assigns a two dimensional array frequency coefficient located at n=0 and m=0 in a corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=0;

assigns a two dimensional array frequency coefficient located at n=0 and m=1 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=1;

assigns a two dimensional array frequency coefficient located at n=1 and m=0 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=2;

assigns a two dimensional array frequency coefficient located at n=0 and m=2 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=3;

assigns a two dimensional array frequency coefficient located at n=0 and m=3 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=4;

assigns a two dimensional array frequency coefficient located at n=1 and m=1 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=5;

assigns a two dimensional array frequency coefficient located at n=1 and m=2 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=6;

assigns a two dimensional array frequency coefficient located at n=1 and m=3 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=7;

assigns a two dimensional array frequency coefficient located at n=2 and m=0 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=8;

assigns a two dimensional array frequency coefficient located at n=2 and m=1 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=9;

assigns a two dimensional array frequency coefficient located at n=2 and m=2 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=10;

assigns a two dimensional array frequency coefficient located at n=2 and m=3 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=11;

assigns a two dimensional array frequency coefficient located at n=3 and m=0 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=12;

assigns a two dimensional array frequency coefficient located at n=3 and m=1 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=13;

assigns a two dimensional array frequency coefficient located at n=3 and m=2 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=14; and

assigns a two dimensional array frequency coefficient located at n=3 and m=3 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=15.

152. The device of claim 151, wherein if said one dimensional array of one dimensional array frequency coefficients comprises 16 one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array, said two dimensional array of said two dimensional array frequency coefficients comprises four columns and four rows of said two dimensional array frequency coefficients and said number of groups of sixteen one dimensional array frequency coefficients comprises:

a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array.

153. The device of claim 152, wherein:

said first group's said corresponding four by four block of said two dimensional array frequency coefficients is a single four by four block comprising said all of said two dimensional array frequency coefficients in said two dimensional array.

154. The device of claim 151, wherein if said one dimensional array of said one dimensional array frequency coefficients comprises 32 one dimensional array frequency coefficients at positions 0 through 31 in said one dimensional array, said two dimensional array of said two dimensional array frequency coefficients comprises four columns and eight rows of said two dimensional array frequency coefficients and said number of groups of sixteen one dimensional array frequency coefficients comprises:

a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array; and

a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array.

155. The device of claim 154, wherein:

said first group's said corresponding four by four block of said two dimensional array frequency coefficients is a top four by four block comprising the top four rows of said two dimensional array frequency coefficients in said two dimensional array; and

said second group's said corresponding four by four block of said two dimensional

array frequency coefficients is a bottom four by four block comprising the bottom four rows of said two dimensional array frequency coefficients in said two dimensional array.

156. The device of claim 151, wherein if said one dimensional array of said one dimensional array frequency coefficients comprises 32 one dimensional array frequency coefficients at positions 0 through 31 in said one dimensional array, said two dimensional array of said two dimensional array frequency coefficients comprises eight columns and four rows of said two dimensional array frequency coefficients and said number of groups of sixteen one dimensional array frequency coefficients comprises:

a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array; and

a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array.

157. The device of claim 156, wherein:

said first group's said corresponding four by four block of said two dimensional array frequency coefficients is a left four by four block comprising the left-most four columns of said two dimensional array frequency coefficients in said two dimensional array; and

said second group's said corresponding four by four block of said two dimensional array frequency coefficients is a right four by four block comprising the right-most four columns of said two dimensional array frequency coefficients in said two dimensional array.

158. The device of claim 151, wherein if said one dimensional array of said one dimensional array frequency coefficients comprises 64 one dimensional array frequency coefficients at positions 0 through 63 in said one dimensional array, said two dimensional array of said two dimensional array frequency coefficients comprises eight columns and eight rows of said two dimensional array frequency coefficients and said number of groups of sixteen one dimensional array frequency coefficients comprises:

a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array;

a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array;

a third group comprising one dimensional array frequency coefficients at positions 32 through 47 in said one dimensional array; and

a fourth group comprising one dimensional array frequency coefficients at positions 48 through 63 in said one dimensional array.

159. The device of claim 158, wherein:

said first group's said corresponding four by four block of said two dimensional array frequency coefficients is a top-left four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the left-most four columns of said two dimensional array;

said second group's said corresponding four by four block of said two dimensional array frequency coefficients is a top-right four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the right-most four columns of said two dimensional array;

said third group's said corresponding four by four block of said two dimensional array frequency coefficients is a bottom-left four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the left-most four columns of said two dimensional array; and

said fourth group's said corresponding four by four block of said two dimensional array frequency coefficients is said bottom-right four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the right-most four columns of said two dimensional array.

160. The device of claim 151, wherein if said one dimensional array of said one dimensional array frequency coefficients comprises 128 one dimensional array frequency coefficients at positions 0 through 127 in said one dimensional array, said two dimensional array of said two dimensional array frequency coefficients comprises eight columns and sixteen rows of said two dimensional array frequency coefficients and said number of groups of sixteen one dimensional array frequency coefficients comprises:

a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array;

a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array;

a third group comprising one dimensional array frequency coefficients at positions 32 through 47 in said one dimensional array;

a fourth group comprising one dimensional array frequency coefficients at positions 48 through 63 in said one dimensional array;

a fifth group comprising one dimensional array frequency coefficients at positions 64 through 79 in said one dimensional array;

a sixth group comprising one dimensional array frequency coefficients at positions 80 through 95 in said one dimensional array;

a seventh group comprising one dimensional array frequency coefficients at positions 96 through 111 in said one dimensional array; and

an eighth group comprising one dimensional array frequency coefficients at positions 112 through 127 in said one dimensional array.

161. The device of claim 160, wherein:

said first group's said corresponding four by four block of said two dimensional array frequency coefficients is a first four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the left-most four columns of said two dimensional array;

said second group's said corresponding four by four block of said two dimensional array frequency coefficients is a second four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the right-most four columns of said two dimensional array;

said third group's said corresponding four by four block of said two dimensional array frequency coefficients is a third four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh from the top of said two dimensional array and in the left-most four columns of said two dimensional array;

said fourth group's said corresponding four by four block of said two dimensional array frequency coefficients is a fourth four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows from the top of said two dimensional array and in the right-most four columns of said two dimensional array;

said fifth group's said corresponding four by four block of said two dimensional array frequency coefficients is a fifth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows from the top of said two dimensional array and in the left-most four columns of said two dimensional array;

said sixth group's said corresponding four by four block of said two dimensional array frequency coefficients is a sixth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows from the top of said two dimensional array and in the right-most four columns of said two dimensional array;

said seventh group's said corresponding four by four block of said two dimensional array frequency coefficients is a seventh four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the left-most four columns of said two dimensional array; and

said eighth group's said corresponding four by four block of said two dimensional array frequency coefficients is an eighth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the right-most four columns of said two dimensional array.

162. The device of claim 151, wherein if said one dimensional array of said one dimensional array frequency coefficients comprises 128 one dimensional array frequency coefficients at positions 0 through 127 in said one dimensional array, said two dimensional array of said two dimensional array frequency coefficients comprises eight columns and sixteen rows of said two dimensional array frequency coefficients and said number of groups of sixteen one dimensional array frequency coefficients comprises:

a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array;

a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array;

a third group comprising one dimensional array frequency coefficients at positions 32 through 47 in said one dimensional array;

a fourth group comprising one dimensional array frequency coefficients at positions 48 through 63 in said one dimensional array;

a fifth group comprising one dimensional array frequency coefficients at positions 64 through 79 in said one dimensional array;

a sixth group comprising one dimensional array frequency coefficients at positions 80 through 95 in said one dimensional array;

a seventh group comprising one dimensional array frequency coefficients at positions 96 through 111 in said one dimensional array; and

an eighth group comprising one dimensional array frequency coefficients at positions 112 through 127 in said one dimensional array.

163. The device of claim 162, wherein:

said first group's said corresponding four by four block of said two dimensional array frequency coefficients is a first four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the left-most four columns of said two dimensional array;

said second group's said corresponding four by four block of said two dimensional array frequency coefficients is a second four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the fourth through seventh columns of said two dimensional array;

said third group's said corresponding four by four block of said two dimensional array frequency coefficients is a third four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the first four columns of said two dimensional array;

said fourth group's said corresponding four by four block of said two dimensional array frequency coefficients is a fourth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the fourth through seventh columns of said two dimensional array;

said fifth group's said corresponding four by four block of said two dimensional array frequency coefficients is a fifth four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the eighth through eleventh columns of said two dimensional array;

said sixth group's said corresponding four by four block of said two dimensional array frequency coefficients is a sixth four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the right-most four columns of said two dimensional array;

said seventh group's said corresponding four by four block of said two dimensional array frequency coefficients is a seventh four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the eighth through eleventh columns of said two dimensional array; and

said eighth group's said corresponding four by four block of said two dimensional array frequency coefficients is an eighth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the right-most four columns of said two dimensional array.

164. The device of claim 151, wherein if said one dimensional array of said one dimensional array frequency coefficients comprises 256 one dimensional array frequency coefficients at positions 0 through 255 in said one dimensional array, said two dimensional array of said two dimensional array frequency coefficients comprises sixteen columns and sixteen rows of said two dimensional array frequency coefficients and said number of groups of sixteen one dimensional array frequency coefficients comprises:

a first group comprising one dimensional array frequency coefficients at positions 0 through 15 in said one dimensional array;

a second group comprising one dimensional array frequency coefficients at positions 16 through 31 in said one dimensional array;

a third group comprising one dimensional array frequency coefficients at positions 32 through 47 in said one dimensional array;

a fourth group comprising one dimensional array frequency coefficients at positions 48 through 63 in said one dimensional array;

a fifth group comprising one dimensional array frequency coefficients at positions 64 through 79 in said one dimensional array;

a sixth group comprising one dimensional array frequency coefficients at positions 80 through 95 in said one dimensional array;

a seventh group comprising one dimensional array frequency coefficients at positions 96 through 111 in said one dimensional array;

an eighth group comprising one dimensional array frequency coefficients at positions 112 through 127 in said one dimensional array;

a ninth group comprising one dimensional array frequency coefficients at positions 128 through 143 in said one dimensional array;

a tenth group comprising one dimensional array frequency coefficients at positions 144 through 159 in said one dimensional array;

an eleventh group comprising one dimensional array frequency coefficients at positions 160 through 175 in said one dimensional array;

a twelfth group comprising one dimensional array frequency coefficients at positions 176 through 191 in said one dimensional array;

a thirteenth group comprising one dimensional array frequency coefficients at positions 192 through 207 in said one dimensional array;

a fourteenth group comprising one dimensional array frequency coefficients at positions 208 through 223 in said one dimensional array;

a fifteenth group comprising one dimensional array frequency coefficients at positions 224 through 239 in said one dimensional array; and

a sixteenth group comprising one dimensional array frequency coefficients at positions 240 through 255 in said one dimensional array.

165. The device of claim 164, wherein:

said first group's said corresponding four by four block of said two dimensional array frequency coefficients is a first four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the left-most four columns of said two dimensional array;

said second group's said corresponding four by four block of said two dimensional array frequency coefficients is a second four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the fourth through seventh columns of said two dimensional array;

said third group's said corresponding four by four block of said two dimensional array frequency coefficients is a third four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows four rows and in the first four columns of said two dimensional array;

said fourth group's said corresponding four by four block of said two dimensional array frequency coefficients is a fourth four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows and in the fourth through seventh columns of said two dimensional array;

said fifth group's said corresponding four by four block of said two dimensional array frequency coefficients is a fifth four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the eighth through eleventh columns of said two dimensional array;

said sixth group's said corresponding four by four block of said two dimensional array frequency coefficients is a sixth four by four block comprising said two dimensional array frequency coefficients in both the top four rows and in the right-most four columns of said two dimensional array;

said seventh group's said corresponding four by four block of said two dimensional array frequency coefficients is a seventh four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows and in the eighth through eleventh columns of said two dimensional array;

said eighth group's said corresponding four by four block of said two dimensional array frequency coefficients is an eighth four by four block comprising said two dimensional array frequency coefficients in both the fourth through seventh rows and in the right-most four columns of said two dimensional array;

said ninth group's said corresponding four by four block of said two dimensional array frequency coefficients is a ninth four by four block comprising said two dimensional array

frequency coefficients in the eighth through eleventh rows and in the left-most four columns of said two dimensional array;

said tenth group's said corresponding four by four block of said two dimensional array frequency coefficients is a tenth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows and in the fourth through seventh columns of said two dimensional array;

said eleventh group's said corresponding four by four block of said two dimensional array frequency coefficients is an eleventh four by four block comprising said two dimensional array frequency coefficients in the bottom four rows and in the first four columns of said two dimensional array;

said twelfth group's said corresponding four by four block of said two dimensional array frequency coefficients is a twelfth fourth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the fourth through seventh columns of said two dimensional array;

said thirteenth group's said corresponding four by four block of said two dimensional array frequency coefficients is a thirteenth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows and in the eighth through eleventh columns of said two dimensional array;

said fourteenth group's said corresponding four by four block of said two dimensional array frequency coefficients is a fourteenth four by four block comprising said two dimensional array frequency coefficients in both the eighth through eleventh rows and in the right-most four columns of said two dimensional array;

said fifteenth group's said corresponding four by four block of said two dimensional array frequency coefficients is a fifteenth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the eighth through eleventh columns of said two dimensional array;

said sixteenth group's said corresponding four by four block of said two dimensional array frequency coefficients is a sixteenth four by four block comprising said two dimensional array frequency coefficients in both the bottom four rows and in the right-most four columns of said two dimensional array.

166. A system of transform-based encoding of digital video content, said digital video content comprising a stream of pictures, slices, or macroblocks in the form of blocks of pixels, each of said blocks of pixels having a corresponding two dimensional array of two dimensional array frequency coefficients, wherein, for each of said blocks, said system comprises:

means for scanning said two dimensional array frequency coefficients in each of a number of four by four blocks with a pre-determined scanning order, said number of four by four blocks each comprising 4 columns and 4 rows of said two dimensional array frequency coefficients, said scanning order sequentially starting at 0 and ending at 15; and

producing a one dimensional array of one dimensional array frequency coefficients.

167. The system of claim 166, further comprising means for dividing said two dimensional array of said two dimensional array frequency coefficients into said number of four by four blocks of two dimensional array frequency coefficients.

168. The system of claim 167, further comprising:

means for representing said columns of said number of four by four blocks with a variable n=0, 1, 2, or 3, wherein n=0 is at least one of a first or leftmost column, n=1 is a second column, n=2 is a third column, and n=3 is at least one of a fourth or rightmost column; and

means for representing said rows of said number of four by four blocks with a variable m=0, 1, 2, or 3, wherein m=0 is at least one of a first or top row, m=1 is a second row, m=2 is a third row, and m=3 is at least one of a fourth or bottom row.

169. The system of claim 168, wherein said one dimensional array comprises a number of groups of sixteen one dimensional array frequency coefficients, said number of groups corresponding to said number of said four by four blocks of said two dimensional array frequency coefficients, wherein said sixteen one dimensional array frequency coefficients in each of said groups are represented with a variable p=0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, in a numerical sequential order, wherein a first one dimensional array

frequency coefficient in said each of said groups is represented by p=0 and a sixteenth one dimensional array frequency coefficient in said each of said groups is represented by p=15.

170. The system of claim 169, wherein if said block of pixels is to be encoded in frame mode, said step of scanning said two dimensional array frequency coefficients in each of said number of four by four blocks comprises:

means for assigning a scanning order = 0 to a two dimensional array frequency coefficient located at n=0 and m=0;

means for assigning a scanning order = 1 to a two dimensional array frequency coefficient located at n=1 and m=0;

means for assigning a scanning order = 2 to a two dimensional array frequency coefficient located at n=0 and m=1;

means for assigning a scanning order = 3 to a two dimensional array frequency coefficient located at n=0 and m=2;

means for assigning a scanning order = 4 to a two dimensional array frequency coefficient located at n=1 and m=1;

means for assigning a scanning order = 5 to a two dimensional array frequency coefficient located at n=2 and m=0;

means for assigning a scanning order = 6 to a two dimensional array frequency coefficient located at n=3 and m=0;

means for assigning a scanning order = 7 to a two dimensional array frequency coefficient located at n=2 and m=1;

means for assigning a scanning order = 8 to a two dimensional array frequency coefficient located at n=1 and m=2;

means for assigning a scanning order = 9 to a two dimensional array frequency coefficient located at n=0 and m=3;

means for assigning a scanning order = 10 to a two dimensional array frequency coefficient located at n=1 and m=3;

means for assigning a scanning order = 11 to a two dimensional array frequency coefficient located at n=2 and m=2;

means for assigning a scanning order = 12 to a two dimensional array frequency coefficient located at n=3 and m=1;

means for assigning a scanning order = 13 to a two dimensional array frequency coefficient located at n=3 and m=2;

means for assigning a scanning order = 14 to a two dimensional array frequency coefficient located at n=2 and m=3; and

means for assigning a scanning order = 15 to a two dimensional array frequency coefficient located at n=3 and m=3.

171. The system of claim 170, wherein said step of scanning said two dimensional array frequency coefficients in each of said number of four by four blocks further comprises:

means for assigning a one dimensional array frequency coefficient located at p=0 in a corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=0 and m=0.

means for assigning a one dimensional array frequency coefficient located at p=1 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=1 and m=0;

means for assigning a one dimensional array frequency coefficient located at p=2 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=0 and m=1;

means for assigning a one dimensional array frequency coefficient located at p=3 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=0 and m=2;

means for assigning a one dimensional array frequency coefficient located at p=4 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=1 and m=1;

means for assigning a one dimensional array frequency coefficient located at p=5 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=2 and m=0;

means for assigning a one dimensional array frequency coefficient located at p=6 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=3 and m=0;

means for assigning a one dimensional array frequency coefficient located at p=7 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=2 and m=1;

means for assigning a one dimensional array frequency coefficient located at p=8 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=1 and m=2;

means for assigning a one dimensional array frequency coefficient located at p=9 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=0 and m=3;

means for assigning a one dimensional array frequency coefficient located at p=10 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=1 and m=3;

means for assigning a one dimensional array frequency coefficient located at p=11 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=2 and m=2;

means for assigning a one dimensional array frequency coefficient located at p=12 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=3 and m=1;

means for assigning a one dimensional array frequency coefficient located at p=13 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=3 and m=2;

means for assigning a one dimensional array frequency coefficient located at p=14 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=2 and m=3; and

means for assigning a one dimensional array frequency coefficient located at p=15 in said corresponding group of sixteen one dimensional array frequency coefficients a value of said two dimensional array frequency coefficient located at n=3 and m=3.

172. The system of claim 171, further comprising:

means for scanning each of said number of groups of sixteen one dimensional array frequency coefficients in said numerical sequential order, said scanning starting at p=0 and ending at p=15; and

means for producing said two dimensional array of said two dimensional array frequency coefficients.

173. The system of claim 172, wherein, for each of said number of groups of sixteen one dimensional array frequency coefficients, said step of scanning said each of said number of groups of sixteen one dimensional array frequency coefficients further comprises:

means for assigning a two dimensional array frequency coefficient located at n=0 and m=0 in a corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=0;

means for assigning a two dimensional array frequency coefficient located at n=1 and m=0 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=1;

means for assigning a two dimensional array frequency coefficient located at n=0 and m=1 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=2;

means for assigning a two dimensional array frequency coefficient located at n=0 and m=2 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=3;

means for assigning a two dimensional array frequency coefficient located at n=1 and m=1 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=4;

means for assigning a two dimensional array frequency coefficient located at n=2 and m=0 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=5;

means for assigning a two dimensional array frequency coefficient located at n=3 and m=0 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=6;

means for assigning a two dimensional array frequency coefficient located at n=2 and m=1 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=7;

means for assigning a two dimensional array frequency coefficient located at n=1 and m=2 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=8;

means for assigning a two dimensional array frequency coefficient located at n=0 and m=3 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=9;

means for assigning a two dimensional array frequency coefficient located at n=1 and m=3 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=10;

means for assigning a two dimensional array frequency coefficient located at n=2 and m=2 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=11;

means for assigning a two dimensional array frequency coefficient located at n=3 and m=1 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=12;

means for assigning a two dimensional array frequency coefficient located at n=3 and m=2 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=13;

means for assigning a two dimensional array frequency coefficient located at n=2 and m=3 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=14; and

means for assigning a two dimensional array frequency coefficient located at n=3 and m=3 in said corresponding four by four block of said two dimensional array frequency coefficients a value of said one dimensional array frequency coefficient located at p=15.